V. Hymenoptera aculeata *collected in Algeria. The* Sphegidae. (*Being* Part V *of the work commenced by the late* EDWARD SAUNDERS, F.R.S., *in* Trans. Ent. Soc. 1901, *p.* 515.) *Revised and completed by the* Rev. F. D. MORICE, M.A., F.E.S.

[Read November 2nd, 1910.]

IN the first paper of the work above referred to (*Heterogyna and Fossores to the end of Pompilidae*) Mr. Saunders expressed his hope that I would follow it shortly with one upon the *Sphegidae*. But on attempting to do so, I soon discovered that I was undertaking a task to which I was unequal, and so we agreed instead that he should go on at once to the other parts of his subject (the *Diploptera* and *Anthophila*) and publish his account of them without waiting for the completion of my paper. Later still, to my great relief, he consented to a further modification of the plan: that I should continue the work gradually till his other papers had appeared, after which he would co-operate with me in finishing it. So the matter stood when, in 1908, Saunders's third paper (the *Anthophila*) appeared in these Transactions; and we then definitely settled arrangements for a division of labour, Saunders undertaking certain Genera, and I others, with the idea of speedily publishing a joint-paper which should form the concluding part of the entire series.

Saunders's illness and death made it impossible to carry out the plan as it was intended; but he was at work upon his share of it up to the last. He had practically completed several "Descriptions of new species," which were found among his papers, and appeared in the Society's Transactions for 1910, Part IV. He had also drawn up an annotated list of all Mr. Eaton's insects (except a few which at the time were in my hands for determination) and had included in it certain of my own specimens, which he had examined and taken note of before leaving home. The annotations were mainly records of localities and dates of capture copied from the labels pinned under the specimens. Others were extracts from a MS. diary

kept by Mr. Eaton during his stay in Algeria from Jan. 1893 to Aug. 1897, giving much detailed information as to the plants visited by particular insects, their appearance and behaviour during life, etc., etc. Occasionally (but very seldom) a remark of Mr. Saunders's own was added; and these seemed generally not intended for publication, but merely to identify a particular specimen about whose treatment he had not made up his mind (*e.g.* "Sp.? under *arenarum* in my box"; "Large insect (like *emarginata*)"; "Black wings!"; "Stylopised"; "Determined for me by Kohl"; etc.). The list was evidently written quickly, with many abbreviations, notes of interrogation, etc., sometimes in ink, sometimes in pencil or blue chalk, and blank spaces left for subsequent insertions of names, dates, authorships of species, and the like. In fact it has the appearance of a "rough draft" intended to assist him in preparing his final "copy," and would scarcely be intelligible to another person apart from the actual collections to which it refers. But by working carefully through it with those collections,* and also with Mr. Eaton's original diary—the latter having been placed in my hands along with all Saunders's entomological MSS. after his death—I believe I have been able to incorporate its substance in this paper, very nearly in the shape in which its author intended to publish it.

This MS. list, then, compiled by Mr. Saunders, supplemented by additional records of my own captures, and revised and emended as to certain details after comparing it with the labels attached to the actual specimens referred to and verifying its citations from Mr. Eaton's diary, forms the nucleus of the present paper. The parts of it for which I am solely responsible—besides the above purely editorial work—are these. (1) The introductory remarks, viz. everything preceding the list itself. (2) All descriptions of new or otherwise remarkable forms—Saunders's own work of this kind having appeared already in the 1910 volume of these Transactions. (3) The arrangement in order of the Genera represented, and the occasional addition of subgeneric names in brackets. In all such matters I have

* The authorities of the Natural History Museum, who now possess all the *Hymenoptera* of the Saunders Coll., most kindly allowed the *Sphegidae* to remain in my charge till this paper should be completed. Otherwise it would have been practically impossible for me to write it.

followed Herr Kohl's work ("Sphegiden-Gattungen," Wien, 1896). (4) Practically the entire treatment of certain Genera, which had been left to me by our arrangement, especially *Ammophila*, *Cerceris*, and the Genera included in various works of Kohl and Handlirsch, e. g. *Diodontus*, *Nysson*, *Sphecius*, *Stizus*, etc. (But I should add that I have rarely arrived at a determination of any doubtful form even in these Genera without at some time consulting Saunders on the subject, so that many of the determinations were really rather his than mine.)

My whole collection of *Crabro* (sensu latiore) has been recently examined and determined for me by Herr Kohl; and, as will be seen below, some also of the names here given for specimens in Saunders's collection rest on his authority. The same great hymenopterist has at various times given me or named for me examples of a great many little-known Mediterranean *Sphegidae*; and having these "quasi-types," as they may be called, before me, I have been enabled to arrive at determinations, which I hope are correct, of several specimens left unnamed by Saunders. Whenever I have ventured to question any of my colleague's identifications, it has nearly always been on the authority of some specimen of my own determined by Kohl, Handlirsch, or Schletterer.

I have thought it right to enter into the above details, which might otherwise seem rather tedious, because I am anxious not to claim for myself the credit for work which is really that of my friend, and yet not to cast upon him the responsibility for imperfections arising simply from the fact that I, and not he, have put this work into its final shape.

On a rough calculation it appears that very nearly 200 *Sphegidae*-spp. belonging to 33 genera are recorded below. Of these, more than half occurred *at Biskra only* (!); and that half comprises nearly all the finest and most striking forms, and quite a surprising number of species and even genera (*Kohlia*, *Laphyragogus*, etc.) which were either altogether or almost unknown to science when we found them. Several of these almost tropical insects occur also in Egypt, on the border-line between the Delta and the deserts east and west of Cairo, and, together with the species most nearly related to them in the same districts, appear to form a definite "Saharan" group; which probably extends all along the northern fringe of Central

Africa, and differs considerably in general appearance (colour, silvery pilosity, etc.) from the more European-looking fauna of the coast. As a rule, in these "Saharan" forms, the prevailing colours are pale lemon-yellow, creamy-white, and red (or testaceous) with very little black, blended harmoniously together, and with the contrasts between them further softened and disguised by their silvery clothing; whereas of the "European" forms, some exhibit strong contrasts of black and red, others of black and yellow, and many (generally small species) are simply black. On the other hand, it is puzzling to find (along with the gaily-coloured yet evidently "cryptic" Saharan forms, and confined to the districts frequented by them) a certain number of very large, quite black (or black with silvery hair-patches), and altogether most conspicuous insects, usually with the wings very dark also—belonging to many different genera in which such a coloration is quite abnormal or even unknown in Europe, though apparently yet further south than the Sahara it is not uncommon.

Of the genera which occur both in Europe and in North Africa, some (as might be expected) are represented by many more species in the former, others in the latter. Thus the timber-frequenting *Sphegidae*, such as *Trypoxylon*, *Crabro* (groups of *Crossocerus*, etc.), *Passaloecus*, *Pemphedron*, etc., figure little in the list of Mr. Eaton's captures, and scarcely at all in my own; though this, perhaps, is partly because of a collector's natural tendency to be attracted by striking and conspicuous insects and to neglect such as look to him ordinary and uninteresting. On the other hand, of certain sand-burrowing genera, e. g. *Ammophila*, *Stizus*, and *Cerceris*, the Algerian species are both exceedingly numerous and far more diversified in appearance than would be expected by a Hymenopterist familiar only with European forms. It might be supposed that the same would be the case with *Mellinus*, but as a matter of fact neither Mr. Eaton nor myself encountered that genus in Algeria at all. Our captures of *Gorytes* include several very beautiful or otherwise remarkable forms, but hardly any of the numerous rather common and deceptively similar species which figure so largely in the European fauna.

Both *Tachytes* and *Tachysphex* are represented in Algeria by many remarkable species. Some of the finest are

known also from Egypt; others were described as new by Saunders in last year's Transactions (Part IV), but unhappily he did not live to describe the finest of all. (See below, *Tachytes superbiens*, n. sp.)

Owing to the long time which has elapsed between the forming and recording of these collections, several insects which, when we found them, were "new to science," have since been discovered and described by others, e. g. *Ancistromma europaea*, Mercet, *Cerceris hartliebi*, Schulz, etc. The same may have occurred in the case of some species here treated as new, but I hope not often. The literature on the subject is scattered, and my own acquaintance with it far from profound. But Saunders kept careful note of such descriptions as they appeared, and inserted them in an interleaved MS. catalogue of Palaearctic Aculeates (extracted from v. Dalla Torre's work) which I now possess; and correspondence with Kohl, Mercet, Schmiedeknecht and others has kept me generally pretty well informed as to the works that have been published of recent years relating to the *Sphegidae* of Europe and N. Africa. If I have inadvertently overlooked any previously published description of any of these insects, I trust the author will accept this apology.

It may be thought that I have been almost over-careful to record all Mr. Eaton's notes on "colour of eyes in life," "plants visited by particular species," etc. Taken as a whole, however, they embody a large number of facts, which may possibly hereafter become of value in ways which cannot now be foreseen, as bearing on problems not yet raised by scientific workers. Mr. Saunders, I know, was at first very hopeful on this head; though I believe he latterly felt some doubt as to the utility of enumerating, one by one, all the countless species resorting to such universally attractive flowers as *Ammi visnaga* at Biskra, etc. Still one never knows what dry bones of fact may have life breathed into them by some future Darwin; so I give these records as I find them.

It must of course always be remembered, that predaceous insects like the *Sphegidae* may be attracted to a particular plant for various reasons—*e. g.* in quest of other insects frequenting it, as well as to suck the nectar of its flowers. But collectors who are also botanists will certainly find it helpful on commencing work in a locality which is fresh to them to have a preliminary idea of the

particular plants which are most likely to reward special observation. And to take the particular case already alluded to, there can be no doubt that the simplest way to ensure a magnificent series of the handsomest Algerian *Hymenoptera*—I do not say the best way of securing really important scientific results—is to spend day after day of long hours of sunshine among the almost monotonous patches of *Ammi visnaga* which fill the Oued of Biskra in the months of May, June, and probably July in a favourable year. No skill is required in taking the insects under such circumstances, and the only difficulty is to make the work of determining and preparing the specimens keep pace with the endless stream of fresh captures.

A matter to which I should like to invite attention is the great length of the period throughout which certain species appear to be on the wing annually in Algeria, examples of them having been taken in almost every month of one year or another. Few, if any, *Sphegidae* appear in our own country for more than a few months; and most of them are rather summer or autumn than spring insects. That a species should *appear* earlier in Algeria seems natural enough, but one would rather expect it to be also "over" earlier, which apparently is seldom the case. It looks as though, in some cases, two or even three generations of the same species must be produced within a year; for several of the specimens taken at quite late dates (August or September) are in as fresh a condition as or even fresher than earlier ones. At the same time many species, and among them some of the most characteristically Saharan forms, seem, from the dates here recorded, to have a comparatively short season—generally appearing first towards the end of May and becoming plentiful a week or so later, but not occurring in the spring or the late autumn. As these records extend over six successive years, statistics founded upon them may have some value; but they would of course be more reliable if Mr. Eaton or myself had spent longer periods than we did on any single hunting-ground, or had continued indefinitely to secure further duplicates of species which we had already taken "to satiety." Probably hymenopterists who are fortunate enough to reside in Mediterranean countries could supply information on these matters which would be interesting to those who can only visit

them occasionally; but I have not succeeded in getting much light on the subject from any published material to which I have access at present.

Ammoplanus perrisii, Gir.

1 ♀. Alger, 15. iv, 98. F. D. M.

Taken flying about a wayside bank on the steep direct ascent to Bouzarea. Though I frequently revisited the spot no other specimen occurred.

Stigmus solskyi, Morawitz

1 ♀. Azazga. Roadside bank going towards the French cemetery between 9 and 10 a.m., 7. ix, 93. A. E. E.

Diodontus friesei, Kohl

Specimens, all of which appear to me to belong to this species, were taken by Mr. Eaton or myself in one locality or another, in every month of the year except January, February, and October! Generally they occurred burrowing in sand or roadside banks; but Mr. Eaton records several on plants and flowering trees, viz. at Constantine on *Ecballium elaterium*; at Biskra visiting *Euphorbia Guyoniana*, *Suaeda vermiculata*, *Tamarix* (near the Barrage), and "a tree with blue flowers" in the Jardin by Fort St. Germain. (Since they prey on Aphids, it would not necessarily follow from their occurrence on a particular plant that they were attracted by its *flowers*.)

6 ♂♂. Alger and neighbourhood, 4. and 6. iv, 93. A. E. E.

1 ♂ and 4 ♀♀. Alger and neighbourhood, 18. iii–10. iv, 98. F. D. M.

11 ♂♂ and 1 ♀. Biskra and neighbourhood in v, 93, iii, 94, iii, 95, and iv, 97. A. E. E.

1 ♂ and 2 ♀♀. Bône, 28. xi, 93, 10. viii and 25. vii, 97. A. E. E.

1 ♀. Constantine, 30. ix, 93. A. E. E.

1 ♀. Tunis, 21. xii, 93. A. E. E.

2 ♀♀. Philippeville, 20. and 21. vi, 98. F. D. M.

Diodontus punicus (Gribodo), André (?)

The specimens have the characters ascribed to his species by Gribodo, and two ♀♀ quite agreeing with them stand in Coll. Saunders as *punicus* received from Staudinger. Gribodo, however, speaks only of the ♂ as having

yellow mandibles, while in these insects the ♀ mandibles are also more or less yellow (in some specimens very distinctly, in others somewhat obscurely). Notwithstanding, I feel sure they are Gribodo's species.

The ♂♂ seem to me identical with that described by Saunders in Ent. Mo. Mag., 1904, p. 202, under the name *gracilipes* (vide his account of the intermediate metatarsi and the antennae—the serrated appearance of the latter beneath is caused partly by a slight excavation of the two penultimate joints!).

The species is larger than *minutus*—about the size of *tristis*; and, as in that species, the face of the ♀ is very broad in proportion to its length. The clypeus in this sex is widely and arcuately emarginate, (the exterior angles of the emargination very prominent and tooth-like,) and has another curious character which might easily be overlooked. It bears several longish scattered projecting hairs, two of which—one on each side just above the "teeth"—are excessively long (though so thin as to be almost invisible except in certain lights) and project straight forward far beyond the others—they are actually almost as long as the scapes of the antennae! In both sexes the vertex and mesonotum show under the microscope a regular reticulate aciculation, and are also very closely punctured (hence the surface appears opaque).

Mr. Eaton records no plants as visited by this species. His examples seem to have been all taken on sand or roadside banks.

1 ♂. Tunis, 21. xii, 93. A. E. E.
1 ♂. Biskra, 17. iv, 94. A. E. E.
4 ♂♂. Bône, 29. ii to 23. v, 96. A. E. E.
1 ♀. Alger, 25. iii, 93. A. E. E.
1 ♀. Bône, 28. xi, 93. A. E. E.
2 ♂♂, 3 ♀♀. Alger, 16. iii to 21. iv, 98. F. D. M.

DIODONTUS AFER, n. sp.

This insect appears to me so very distinct from anything I can find described that I venture to bring it forward as new, though rather unwillingly, as it is a single specimen.

The head, thorax, propodeum, and first abdominal segment are all exceedingly shining, and contrast most strikingly with the remaining abdominal segments, which are absolutely dull.

♀. Nigra, tegulis, genubus pedum omnium, et tarsis anticis rufescentibus vel brunneis, tuberculis nigris. Corpus, abdomine post segmentum basale excepto, valde nitens, subtilissime sparse punctulatum. Vertex (non autem mesonotum) microscopice reticulato-aciculatus; scutellum, ut videtur, omnino laeve. Propodeum in medio triangulariter impressum, subobsolete strigosum, angulis lateralibus acutis ac quasi reflexis, sed haud vel vix dentiformibus. Caput antice visum fere rotundum (haud transversum). Antennarum articuli intermedii fere quadrati; articulus 3^tus^ fere duplo- (4^tus^ fere sesqui-) latitudine sua longior.

Long. circ. 6 mm.

1 ♀. Alger, 28. iii, 98. F. D. M.

Diodontus schmiedeknechtii, Kohl

I think these insects must belong to Kohl's species described from the adjoining Province of Oran. They have all, however, black "Schulterbeulen" (tubercles) which the author says is unusual in *schmiedeknechtii*.

(They very much resemble *luperus*, but have, I think, a finer and more sparse puncturation; and, so far as I can ascertain, the range of that species does not extend far south of the Alps.)

1 ♀. Hussein Dey (near Alger), probably on *Reseda*, 4. iv, 93. A. E. E.

1 ♀. Hippône, on *Sedum caeruleum*, 16. v, 96. A. E. E.

2 ♂♂ and 1 ♀. Alger, 11. iv to 2. v, 98. F. D. M.

Passaloecus brevicornis, Moraw.

The following specimens belong to the most brightly-coloured form of the species (called *d* in Kohl's latest tabulation of the Genus). The insect we know in this country as *P. insignis* is, according to Kohl, another form of the same species. On comparing British "*insignis*" with these Algerian insects, I find that the head and thorax in the latter are distinctly a little more shining and less closely punctured, and that in this respect they agree with some Swiss specimens in my collection given to me as *turionum*, Dahlb.—which latter is also, according to Kohl, synonymous with *brevicornis*.

The nomenclature of the *Passaloecus* spp. is a difficult subject, but has probably been cleared up as far as it is ever likely to be by the paper of Kohl above referred to

(*Zur Kenntnis der Hymenopterengattung Passaloecus Shuck.* Wien, 1905).

Mr. Eaton records that his specimen from Alger (which is ticketed as a ♀ but is certainly a ♂) was taken along with another "burrowing in sand." There must be some mistake, however, here, I think; for the other specimen, though superficially very like this, is a ♂ *Diodontus*; and, normally at least, *Passaloecus* nidificates in *wood* (posts, palings, etc.) and not, like *Diodontus*, in sand.

1 ♂. Alger, 6. iv, 93. A. E. E.
2 ♂♂. Bône, 14. v and 10. vi, 96. A. E. E.
5 ♂♂ and 1 ♀. Alger (all on 21. iv, 98). F. D. M.

Pemphredon shuckardi, Morawitz

1 ♂. Bône, 16. iii, 96. A. E. E.
1 ♀. Bône, 2. v, 96. A. E. E.
3 ♂♂, 1 ♀. Alger, 7. iii to 5. iv, 98. F. D. M.
1 ♀. Constantine, 17. v, 98. F. D. M.
1 ♂, 1 ♀. Philippeville, 20. and 21. vi, 98. F. D. M.

The specimens are mostly rather small. Some of my own have been determined by Herr Kohl as *shuckardi*, and I think they all belong pretty certainly to that species.

Sceliphron targionii (Car.) D. T.

6 ♂♂. Biskra, on *Ammi visnaga*, 15. and 21. v, 97. A. E. E.
7 ♂♂ and 2 ♀♀. Biskra, 21.–23. v, 98. F. D. M.

Sceliphron pensilis, Ltr.

2 ♂♂. Biskra, on *Ammi visnaga*, 30. v, 93 and 19. v, 97. A. E. E.
3 ♂♂, 1 ♀. Biskra, 4.–16. v, 98. F. D. M.

Sceliphron tubifex, Lep.

♂ 1. Kef Oum Taboul (neighbourhood of Lac Tonga). "A species common in La Calle and at Le Tarf." 16. vii, 96. A. E. E.

Genus Ammophila, Kirby

My descriptions of the novelties and chief rarities among Mr. Eaton's and my own captures in this genus were published in the Annals and Magazine of Natural History, Jan. 1900. Certain mistakes made by me in

that paper have since been put right in Herr Kohl's Monograph of the Genus (1907), and the nomenclature of the latter work is followed in the list of captures given below.

Ammophila (Psammophila) atrocyanea, Ev.

I described these mistakenly as a nov. sp. under the name *masinissa*.

2 ♂♂. Biskra, 29. iii and 3. iv, 97. A. E. E.
1 ♀. Biskra, 7. ii, 95. A. E. E.

Ammophila (Psammophila) gulussa, Morice

1 ♂. Biskra, 30. iii, 97. A. E. E. (The type-specimen.)

Mr. Eaton on the following day took a ♀, which I supposed to belong to the above male, and described under the same name. Herr Kohl, however, is of opinion that they belong to two species, and that the ♀ is identical with his *algira* (an Eremochares), under which name it is recorded below.

Ammophila (Psammophila) hirsuta, Scop.

Numerous specimens from Biskra in February, March and April of different years. A. E. E.

Ammophila (Psammophila) tydei, Guill.

4 ♂♂. Biskra, 25. iii and 8. v, 97. A. E. E.
2 ♀♀. Biskra, 1. iii, 95. and 25. iii, 97. A. E. E.
1 ♀. Biskra (Col de Sfa), on *Teucrium polium*, 2. vi, 93. A. E. E.

Ammophila (Psammophila) micipsa, Morice

2 ♀♀. Biskra, 7. and 24. iii, 97. A. E. E. (Co-types.)

One of these was presented to me by Mr. Saunders, and is in my collection.

Ammophila (Parapsammophila) monilicornis, Morice

5 ♂♂. Biskra, 2.–6. vi, 98. F. D. M.

One of these has 14 (!) joints to each antenna.

Ammophila (Eremochares) dives, Brullé

1 ♂. Biskra, "visits *Nitraria tridentata* and *Tamarix*," 25. iv, 97. A. E. E.
2 ♂♂ and 1 ♀. Biskra, on *Tamarix*, 28. iv, 97. A. E. E.

3 ♀ ♀. Biskra, on *Echinops spinosus*, 6.–8. v, 97. A. E. E.
♀ 1. Biskra, 21. v, 94. A. E. E.
5 ♂ ♂, 7 ♀ ♀. Biskra, 12. v to 9. vi, 98. F. D. M.

Ammophila (Eremochares) lutea, Tasch.

1 ♂, 4 ♀ ♀. Biskra, 30. iv–28. v, 98. F. D. M.

Ammophila (Eremochares) algira, Kohl

1 ♀. Biskra, "resting for the night on a *Ferula* leaf, simply standing," 31. iii, 97. A. E. E.

This, as stated above, was described by me as the ♀ of *gulussa*.

Ammophila (Coloptera) judaeorum, Kohl

4 ♂ ♂, 1 ♀. Biskra, 6.–30. v, 98. F. D. M.

Ammophila gracillima, Tasch.

1 ♂. Biskra, 5. v, 97. A. E. E.

I described this as the ♂ of *producticollis* (infra), but Herr Kohl considers the ♂ to be *gracillima*, and not identical specifically with *producticollis* ♀.

Ammophila haimatosoma, Kohl

1 ♂. Biskra, among *Tamarix*, 3. v, 97. A. E. E.
1 ♀. Biskra, "in the Jardin near Fort St. Germain," 2. vi, 93. A. E. E.

Ammophila producticollis, Morice

1 ♀. Biskra, 16. iv, 94. A. E. E. (The type-specimen.)

Ammophila albotomentosa, Morice

1 ♂. Biskra, 31. v, 98. F. D. M. (Type of ♂.)
1 ♀. Biskra, 26. iv, 97. A. E. E. (Type of ♀.)

Ammophila quadraticollis, Costa

2 ♂ ♂. Le Tarf, 17. vi, and La Calle (on sandhills), 15. vii, 96. A. E. E.
1 ♀. Bône, 4. viii, 97. A. E. E.

Ammophila nasuta, Lep.

2 ♂ ♂, 3 ♀ ♀. Alger, 27.–30. iv, 98. F. D. M.

Ammophila poecilocnemis, Morice

2 ♂♂. Biskra, "visits *Ferula vesceritensis*," 19. iii, 20. iii, and 5. iv, 95. A. E. E.

1 ♂, 2 ♀♀. Biskra, 29. iii–22. iv, 97. A. E. E.

(These specimens are co-types.)

Ammophila propinqua, Tasch.

1 ♂. Biskra, 29. iii, 97. A. E. E.

1 ♀. Biskra, 17. v, 97, on *Ammi visnaga*. A. E. E.

Ammophila heydenii, Dahlb.

1 ♂. Constantine, 30. v, 95. A. E. E.

1 ♀, Constantine, 16. vi, 98. F. D. M.

Sphex (Chlorion) xanthocerus, Kl.

1 ♀. Bône, on *Cynanchum acutum*, 18. viii, 97. A. E. E.

Sphex (Harpactopus) Eatoni, E. Saunders

2 ♂♂, 3 ♀♀. Biskra, on *Ammi visnaga*, 19.–30. v, 97. A. E. E.

1 ♂. Biskra, 4. vi, 98. F. D. M.

The above are co-types of the description in Trans. Ent. Soc. 1910, Part IV, and those in Coll. Saunders stand above a label "Eatoni E.S." In the author's last letter to me he expressed himself as still somewhat doubtful whether he should not after all list them as a form of *lugens*, Kohl, but mentioned the same points of distinction as are noticed in his published description.

Sphex (Harpactopus) Stschurowskyi, Rad., var. hyalinipennis, Kohl

1 ♂, 4 ♀♀. Biskra, on *Echinops spinosus*, 7. and 8. v, 97. A. E. E.

Sphex (Harpactopus) subfuscatus, Dahlb.

1 ♀. Biskra, on *Ammi visnaga*, 31. v, 93. A. E. E.

Sphex (Paraspiiex) viduatus, Christ.

1 ♂. Biskra, 28. v, 93. A. E. E.

4 ♀♀. Biskra, on *Echinops spinosus*, 6.–8. v. 97. A. E. E.

1 ♀. Biskra, on *Ammi visnaga*, 2. vi, 97. A. E. E.

2 ♂♂, 5 ♀♀. Biskra, 27. v–9. vi, 98. F. D. M.

Sphex (Parasphex) albisectus.

1 ♂. Bône, on *Euphorbia paralias*, 23. viii, 97. A. E. E.
1 ♀. Biskra, on *Mentha rotundifolia*, 10. viii, 97. A. E. E.
1 ♀. Biskra, 22. iv, 97. A. E. E.
1 ♀. Biskra, on *Atractylis serratuloides*, 11. v, 97. A. E. E.

Mr. Saunders has noted that the above ♀ ♀ "show the pale apices of the segments very slightly," but that he has "little doubt in referring them to this species, as they have only three teeth on the claws, and the ventral apex of the abdomen red."

Sphex (Calosphex) niveatus, Duf.

1 ♂. Biskra, on *Ammi visnaga*, 24. v, 97. A. E. E.
1 ♀. Biskra, 3. v, 97. A. E. E.

The ♀ is pinned together with a grasshopper (*Sphingonotus 8-fasciatus*) many times larger than itself, and Mr. Eaton has noted as follows:—"The grasshopper was struck by the wasp during flight, fell paralysed to the ground, and was being carried off when the wasp was caught."

Sphex (Calosphex) senilis, n. sp.

This insect is exceedingly like the last, but its silvery (or rather hoary) clothing appears decidedly thinner, and as all the specimens agree in this, and they were taken at different times and under different circumstances, I hardly think this is merely due to "rubbing."

The ♀ seems to me clearly distinct by the following characters:—

(1.) Pecten tarsale, antici pedis, et tarsorum omnium armatura spinosa *non alba sed evidenter nigricantia*.

(2.) Clypeus *haud planus*, sed in medio longitudinaliter ita elevatus ut tectiformis vel paene carinatus videatur. Apex eiusdem angulariter (*haud arcuatim*) subexcisus.

(3.) Scutellum in medio *multo minus profunde impressum*. (Hoc in *niveato* ita sulcatum est, ut bituberculatum dici possit; quod in *senili* videre nequeo.)

The measurements of petiole, tarsal joints, etc., seem to me a little different from those of *niveatus*, but the differences are so slight that I should hesitate to lay stress on this. As for the ♂ ♂, I can find no really satisfactory

characters to distinguish them, and it may be that some which I take to belong to the above ♀ ♀ are really ♂ ♂ of *nivcatus*. But comparing them with Egyptian ♂ ♂ of *nivcatus* determined by Herr Kohl, I notice that, like the ♀ ♀, they have certainly a thinner and less brilliant silvery pubescence, allowing the sculpture of the very slightly impressed scutellum and the transversely rugulose propodeum to be seen quite clearly, whereas in Egyptian *nivcatus* the sculpture is wholly concealed. In the details of the alar neuration (form of 3rd cubital cell, position of recurrent nerves, etc.) they differ exceedingly, and this makes me doubt whether they may not be a mixture of two different species. But the ♀ ♀ must, I think, be distinct from *niveatus*; and they certainly are not *nigropectinatus*, in spite of their dusky pecten, having a far longer petiole and an altogether less brilliant appearance, to say nothing of their smaller size. Some of Mr. Eaton's specimens are darker than my own, but this, I think, is accidental—probably due to cyanide.

1 ♀. Biskra, on *Ammi visnaga*, 28. v, 94. A. E. E.

2 ♀. Biskra, visiting *Nitraria tridentata* and *Tamarix*, 25. and 28. iv, 97. A. E. E.

1 ♀. Biskra, on *Tamarix*, 29. iv, 97. A. E. E.

1 ♀. Biskra, on *Echinops spinosus*, 7. v 97. A. E. E.

4 ♂ ♂, 6 ♀ ♀. Biskra, 7. v to 9. vi, 98. F. D. M.

Sphex (Calosphex) nigropectinatus, Tasch.

1 ♀. Biskra, 6. vi, 98. F. D. M.

Sphex afer, Lep. (?)

2 ♂ ♂, 3 ♀ ♀. Biskra, on *Ammi visnaga*, 29. v, 94 and 15. v to 22. vi, 97. A. E. E.

7 ♂ ♂, 2 ♀ ♀. Biskra, on *Echinops spinosus*, 6–10. v, 97. A. E. E.

19 ♂ ♂, 3 ♀ ♀. Biskra. F. D. M.

The ♂ ♂ are all black; in the ♀ ♀, agreeably to Lepelletier's description, the abdomen is largely red. I find in them all the characters given by Lepelletier, and this, coupled with their habitat, and their enormous size (some quite 36 mm. long), makes me feel sure that they are the species he was describing. Mr. Saunders at one time called them *tristis*, Kohl, and the ♂ ♂ certainly agree with the description of that species. But the dimensions of

tristis ♀ are given as 23–26 mm. only; and the author does not mention any difference of colour between ♂ and ♀ *tristis*, but simply says of the species "Nigra, nonnunquam paullum fuscescens."

SPHEX FLAVIPENNIS, F.

1 ♀. Médéa, on *Daucus setifolius*, 2. viii, 94. A. E. E.
1 ♂. Biskra, 3. vi, 98. F. D. M.

SPHEX MAXILLOSUS, F.

Numerous ♂ ♂ and ♀ ♀ from Biskra, Tizi Ouzou, Hippône (on *Ammi visnaga*), Médéa (on *Mentha rotundifolia*)—April to August. A. E. E. and F. D. M.

CERCERIS BUPRESTICIDA, Duf.

The ♀ is coloured far more brightly than normal European specimens, having the whole face, collar, postscutellum, lateral areas of the propodeum and a pair of discal spots on the middle area, nearly the whole of segments 1, 3, 4, and 5, and a wide uninterrupted basal fascia on segm. 2 of the abdomen above bright yellow. The femora are not black, but only somewhat rufescent; and ventral segments 2 and 3 are also not black but obscurely red and marked with yellow. Still I can find no structural difference accompanying this unusual colouring. Clypeus, cordiform area, ventral segments, etc., are formed and sculptured exactly as in ordinary *buprestícida*; and the ♂ ♂, though more yellow than specimens from Tirol, Corfu, etc., are not very much so.

1 ♂. Le Tarf, on *Foeniculum vulgare*, 26. vii, 96. A. E. E.
1 ♂. Biskra, on *Zizyphus lotus*, 3. v, 95. A. E. E.
1 ♂ and 1 ♀. Biskra, 14. and 23. v, 98. F. D. M.

CERCERIS INSIGNIS, Kl. (?)

Klug described his sp. from the ♀ only, and almost entirely on colour-characters. The present identification can only be conjectural; but if the insects now to be recorded are not really *insignis*, they must at least be exceedingly near it. (I feel pretty sure that *tricolorata*, Spin., is a synonym of the same species. This was also described from a ♀ only.) As neither author sufficiently describes the structural characters to fix for certain the affinities of his species, and Schletterer has therefore been

obliged to omit both names from his Tables, and relegate the descriptions to an appendix, I will here give the characters which I find in the ♀♀ before me, and also those of the ♂♂ which I take to belong to them, the latter sex being hitherto (so far as I know) undescribed. I may add that these characters show that in structure, though not in colour, the species is allied very closely to *bupresticida*, but that it can hardly be actually identified with it.

♀. Nigra, thorace infra et in lateribus cum propodei areis omnibus, et abdominis petiolo (hoc latitudine sua paullo longiore) rubris; facies cum carina interantennali brevi; collare utrinque, post-scutellum (interdum), maculae duo vel fascia interrupta basalis abdominis segmenti 2^di^ (cujus fasciae etiam in ventris lateribus continuatio satis obsoleta indicatur), fascia lata antice emarginata segmenti 3^tii^, et segmentum 5^tum^ fere totum superne, flava; pedes pallidi, femoribus (praeter genua) cum trochanteribus coxisque fuscis vel obscure rufis, tibiis intus macula elongata nigra ornatis.

Clypei haud elevati apex in angulos plus minusve dentiformes excurrit, et praeterea tuberculis binis subapicalibus instructus est. (Haec autem armatura paene "microscopica" appellari debet!) Segmenti ventralis 2^di^ basis simplex (haud elevata); segmenti ventralis penultimi in medio evidenter foveati apex recurvatur in medio, ibique ita excisus est ut paene bidentatus videatur (minus tamen acute quam in *bupresticida*). Propodei area media rubra (an semper?), disco laevi, et in medio haud canaliculata longitudinaliter, sed basi extrema brevissime et subtilissime longitudinaliter striolata.

♂. Feminae simillima, sed minor, minusque rufescens. Abdominis quidem segm. 1^mum^ semper (ut videtur) rubrum: sed thoracis (proprie dicti) nulla pars et propodei aut areae solum laterales, aut ne hae quidem, rufo-pictae. Flavedo ut in ♀; sed fascia abdominis tertia non segmentum 5^tum^ occupat sed 6^tum^, et segmentum 2^dum^ ventrale paene totum (!) flavet.

Clypei margo apicalis denticulatus. Segmenti penultimi ventralis apex lateribus acute denticulatis. Propodei area media fere ut in femina, sed (in exemplaribus his omnibus) linea impressa longitudinali evidenter in medio divisa.

The following two ♀♀ may possibly belong to a different, or even to *two* different species, but I am more inclined to think their peculiarities "individual," or at most "varietal."

a. Thorax entirely (except the yellow collar, postscutellum and tegulae) and also the cordiform area of the propodeum black (not red!). Hind tibiae within immaculate. Yellow

band of abd. segm. 3 scarcely at all emarginate, but practically covering the whole segment: also the basal band on segm. 2 is not broken into two spots but entire. Head with two little oblique yellow streaks or spots between the ocellar region and the tempora. In this form the body above is punctured much less closely than in that previously described, and its surface conspicuously more shining. The apical teeth and tubercles of the clypeus seem also to be more strongly developed; when the mandibles are opened, it appears from certain points of view actually "sexdentate"!

1. ♀ Biskra, 6. vi, 98. F. D. M.

b. This agrees with the last-mentioned form in its shining and comparatively sparsely punctured surface, and (I think) as to clypeus-characters (but unluckily in Mr. Eaton's only specimen the mandibles are closed!). Its coloration is very peculiar. The thorax shows no red at all, not even on the sides of the propodeum. On the other hand the 2nd abd. segment is not black and yellow but entirely red like the first! The yellow bands on segm. 3 and 5 are deeply emarginated. The tibiae within are black-marked, and the head above is immaculate.

1. ♀ Biskra, 31. v, 97, on *Ammi visnaga*. A. E. E.

Except as stated, the characters of these two specimens agree with those of the ♀♀ described previously. Accordingly, whatever view be taken of their relation to *insignis*, they certainly belong to the same group with it, viz. that of *buprestícida*.

CERCERIS FISCHERI, Spin. (?)

Fischeri, like *tricolorata*, seems to be an insect of which nothing is known except from Spinola's description. From what he tells us it would seem that the two species differ very little in colour, but are certainly distinct by the structure of the front coxae in both sexes, those of *fischeri* having a remarkable spine-like (cuneiform?) production or dilatation outwards, while those of *tricolorata* are normal. He mentions, too, that in *fischeri* the cordiform area has a distinct impression bisecting it longitudinally, which is not the case with the other species.

Both these characters distinguish the two ♀♀ now to be considered from those referred above to *insignis*, of which, as has been said, I believe *tricolorata* to be a synonym,

i.e. they have the anterior coxae very strongly cuneiform (simple in *insignis* as in *buprestícida*) and the cordiform area is manifestly divided by a longitudinal impression. They are marked with yellow almost exactly as is the other species, and like it they have a ground-colour varying between red and black, but with the red considerably more extensive than in even the brightest specimens of *insignis*.

They differ, however, from *insignis* in certain important points of structure (not mentioned by Spinola) which show that they do not belong, as it does, to the group of *buprestícida* at all, but must be considered as nearly allied to *funerea*, Costa, though in colour, etc., they are exceedingly unlike that species. By Schletterer's Tables one might suppose them to be his *eugenia*, but from the description of that species it seems impossible that such should be the case. Even if it be so, unless I am wrong in referring them to Spinola's species, they must retain the name given to them by that author.

Three ♂♂ taken by Mr. Eaton appear to me certainly to belong to the present species. As *C. fischeri* in both sexes has always been somewhat of a mystery to hymenopterists, I will attempt a diagnosis of the characters which I find in the specimens before me.

♀. Clypei haud elevati pars apicalis (ut in *emarginata*, etc.) subtriangulariter impressa. Segmenti ventralis 2^{di} basis elevata. Segmenti penultimi apex late ac profunde emarginatus, angulis eiusdem lateralibus ita elevatis ut quasi dentiformes videantur (minus tamen acute quam in *C. funerea*).

Caput nigrum; facie cum carina brevi interantennali, mandibulis (apicibus exceptis nigris), antennarumque scapis flavis (flagellis harum fulvis). Pro- et mesothorax nigra plus minusve rubro-variegata; scutellum rubrum; collare utrimque, tegulae alarum, et postscutellum flava. Propodeum (aut totum, aut excepta area media nigra rubro-bimaculata,) cum metapleuris et abdominis maxima parte rubra. Huius segmentum 1^{mum} totum rubrum; segmenti 2^{di} dorsum macula magna basali flava, venter eiusdem (an semper?) vestigiis quibusdam obsoletis fasciae apicalis flavae signatus: 3^{tium} annulo lato apicali completo (*i. e.* ventrem quoque complectente) flavo: 5^{tum} apice dorsali flavo. Bases segmentorum intermediorum superne in medio plus minusve late denigratae. Pedes flavi, coxis trochanteribus femoribusque rufescentibus, tibiis intus immaculatis.

Caput superne punctis densis subopacum; thorax vero et abdomen

superne punctis dispersis vel subdispersis nitidissima. Propodei area media, basi non aut vix striolata, sed in medio longitudinaliter impressa vel sulcata, disco eiusdem (etiamque partibus adjacentibus arearum lateralium satis late!) omnino impunctatis et laevibus. Ventris puncta crassa et valde inaequalia, partim confluentia, partim sparsa, partim fere obsoleta.

♂ (exceptis excipiendis) feminae simillimus. Paullo minus copiose rufescens, propodei area media tota nigra. Flavedo ut in ♀, sed 6ti quoque segmenti dorsum fere totum flavet. Forma gracilior—petiolus praesertim multo magis elongatus. Coxae anticae (ut in ♀) valde cuneiformes, flavae. Structura ventris cum ♀ congruens.

3 ♂♂. Biskra, on *Polygonum aviculare*, 30. vi, and on *Ammi visnaga*, 8. vii, 97. A. E. E.
1 ♀. Biskra, on *Ammi visnaga*, 24. v, 97. A. E. E.
1 ♀. Biskra, 18. v. 98. F. D. M.

Cerceris emarginata, Pz.

This species is so common in all Mediterranean countries that a complete list of localities, etc., seems hardly needed. Mr. Eaton took ♂♂ as early as March (at Biskra in '97), and as late as October (Azazga in '93). They occurred visiting many different plants, as *Antirrhinum ramosissimum* at Biskra, *Marrubium vulgare* at Constantine, *Eryngium triquetrum* at Médéa, *Ammi visnaga* at Biskra and Hippône. My own captures of it were all made at Biskra and most probably on *Ammi visnaga*.

15 ♂♂ and 5 ♀♀ at various dates and places. A. E. E. and F. D. M.

Cerceris straminea, Duf. (?)

A single ♂ taken by Mr. Eaton may possibly (?) belong to this species. It agrees with it at least (and with no other whose description is known to me) in being absolutely *without black* on the body except at the apices of the mandibles! There is, however, a slightly infuscated line behind each antenna running along the sides of the usual interantennal carina.

In structure the insect is practically a gigantic *emarginata* (quite 10 mm. long). Dufour's type was a ♀, and he gives no characters but of colour; so that the identification I have suggested is a mere conjecture, and very likely wrong! Mr. Eaton's specimen is entirely pale yellow (with the

thorax slightly more rufescent—perhaps only a result of death by cyanide).

1 ♂. Biskra, on *Ammi visnaga*. A. E. E.

Cerceris dacica, var. opulenta, var. nov.

The coloration of this form is utterly unlike that of normal *dacica*; but in structure I can find absolutely no difference, except that the puncturation of certain areas, and also the fine oblique striae on the "cordiform" area, seem to be slightly feebler and shallower. Schletterer describes a var. *magnifica* of his *dacica*, differing from the type in being much more copiously ornamented with yellow: but the specimens before me not only have all the yellow markings of var. *magnifica*, but many more: thus the tempora, scutellum, all the areas of the propodeum, and the 1st abdominal segment, are practically yellow in both sexes, the vertex is marked posteriorly in the ♂♂ with a large yellow spot and in the ♀♀ with a pair of obliquely converging streaks, the collar is entirely yellow, and so is the interantennal carina which, as in all forms of *dacica*, is very strongly developed and in the ♀ practically reaches right up to the anterior ocellus; finally, in the ♀ even the mesonotum is not entirely black but shows two discal and two lateral yellow streaks, such as occur in highly-coloured specimens of the related but very distinct and much smaller species *annexa*, Kohl. (Mr. Eaton's ♀ specimen is greatly disfigured by the effects of cyanide, and also seems to have been originally less highly coloured than any of my own; but even in it the mesonotum and cordiform area show markings which no doubt were yellow once, though now they are merely reddish and scarcely noticeable, having become almost as dark as the surfaces surrounding them.)

I should have referred these insects without hesitation to *caspica*, Morawitz, had not that author expressly distinguished his species from *dacica*, as lacking impressed punctures on the tegulae and at the base of the pygidial area. Such punctures are distinctly visible in the specimens before me, so that, if the character be reliable, they cannot be *caspica*. Otherwise, both in structure and colour, they agree closely with Morawitz's description of the brighter (and apparently the normal) forms of that species. I am much inclined to suspect that *dacica*, *caspica*, *magnifica* and *opulenta* will ultimately prove to

be local races of a single widely-distributed species, which extends from Algeria to North China. I may add that the few specimens which I have seen determined by competent authorities as "*caspica*, Morawitz," are all less highly coloured than my own of *opulenta*, and apparently also than the form which Morawitz originally described. (None of them, *e.g.*, have the cordiform area yellow!)

2 ♂♂ and 1 ♀. Biskra, on *Ammi visnaga*, 17. v. 97. A. E. E.

1 ♂. Biskra, on *Ammi visnaga*, 19. v, 97. A. E. E.

2 ♀♀. Biskra, 26. v, and 6. vi, 98. F. D. M.

1 ♀. (Label giving date and locality is lost; but no doubt it was taken at Biskra in v or vi, 98.) F. D. M.

On 20. v, 98 I took a single ♂ in many ways much resembling the above, but with vertex, scutellum and "cordiform area" black, tempora with only a small yellow spot behind each eye, collar only yellow at the sides, and puncturation of abdomen coarser and more rugose. (This perhaps may be a specimen of *dacica*, var. *magnifica*, Schlett.)

Cerceris lunata, Costa

4 ♂♂, 3 ♀♀. Biskra, on *Ammi visnaga*, 18. and 25. v, 93. A. E. E.

2 ♀♀. Hippône, on *Ammi visnaga*, 12. viii, 96. A. E. E.

1 ♂, 3 ♀♀. Médéa, on *Eryngium triquetrum*, 26. vi, and 11. vii, 93.

3 ♀♀. Biskra, 24.–27. v, and 11. vi, 98. F. D. M.

Cerceris pallidula, Morice

The single specimen taken perfectly agrees with my "type" from Egypt.

1 ♀. Biskra, 15. vi. 98. F. D. M.

Cerceris pruinosa, Morice

I described this species (perhaps rather rashly) in 1897 from a single ♀ taken near Cairo, and am glad to find my ideas as to its distinguishing characters confirmed by further captures of what is evidently the same insect at Biskra in both sexes. In all, Mr. Eaton and myself have taken there 3 ♂♂ and 4 ♀♀, the ♀♀ corresponding in all respects with my Egyptian "type," and the ♂♂ strongly resembling them both in colour and structure—

in fact the two sexes can scarcely be distinguished without counting the abd. segments or examining the clypeus!

C. pruinosa ♂ differs from the ♂ of *C. pallidula* in the shape of the collar, which is much less profoundly impressed or emarginate in the middle; the 3rd antennal joint looks about as long as the 2nd and 4th taken together, while in *pallidula* it is scarcely longer than the 4th alone. Its average size seems to be a trifle greater, and its general tint is just a shade deeper—a pale lemon-yellow, while *pallidula* is rather creamy than actually yellow. The silvery pilose covering of the face in all my *pruinosa* ♂ ♂ is more conspicuous than in *pallidula*, but I have not sufficient material to determine whether this character is constant, though it *appears* to me that in *pruinosa* the actual hairs are longer than in the other species.

Mr. Eaton's specimens were taken on *Ammi visnaga*, and so probably were my own. He notes that the eyes of the ♀ in life were "light yellowish green."

1 ♀. Biskra, on *Ammi visnaga*, 23. v, 97. A. E. E.
1 ♂. Biskra, on *Ammi visnaga*, 29. v, 97. A. E. E.
1 ♂. Biskra, 30. v. 98. F. D. M.
1 ♂ and 2 ♀ ♀. Biskra, 7. vi, 98. F. D. M.
1 ♀. Biskra, 9. vi, 98. F. D. M.

Cerceris annexa, Kohl

A species resembling the two last in many respects, but smaller and far more delicately punctured. It seems to be common at Biskra every year in May, as Mr. Eaton took it in that month of '93, '94, '95 and '97, and I found it abundant in the same month of '98. According to Mr. Eaton's notes it appears to frequent first *Zizyphus lotus* and then *Ammi visnaga*.

2 ♂ ♂. Biskra, on *Zizyphus lotus*, 30. iv and 3. v, 95. A. E. E.
1 ♂, 1 ♀. Biskra, on *Zizyphus lotus*, 10. and 14. v, 97. A. E. E.
2 ♂ ♂. Biskra, on *Ammi visnaga*, 17. v, 97. A. E. E.
2 ♀ ♀. Biskra, on *Ammi visnaga*, 29. v, 94. A. E. E.
1 ♀. Col de Sfa, near Biskra, 27. v, 93. A. E. E.
13 ♂ ♂. Biskra, 7. v to 9. vi, 98. F. D. M.
10 ♀ ♀. Biskra, 20. v to 9. vi, 98. F. D. M.

Cerceris lutea, Tasch. (= *nilotica*, Schlett. !)

I have carefully compared my single (♂) specimen, both as to colour and structural details, with one from Egypt, and can find no difference whatever.

1 ♂. Biskra, 7. v, 98. F. D. M.

Cerceris eatoni, n. sp.

Caput nigrum, facie cum carina interantennali, mandibulis (praeter apices nigros) fascia pone ocellos, macula (vel striga) pone utrumque oculum flavescentibus. Thorax niger; collari, tegulis, scutello, postscutello que flavescentibus; pleuris sternis et propodei areis lateralibus plus minusve (in ♀ opulentius) flavo-pictis. Pedes flavescentes, femoribus posticis (praeter genua) nigris. Abdominis segmenti 2^{di} fascia lata antice emarginata, 4^{ti} (interdum etiam 5^{ti}) basis nigra; reliqua pars abdominis flava vel flavescens, segmentorum ventralium discis plerumque concoloribus. (Hisce in exemplaribus omnibus flavedo nonnusquam in aurantiacum vel ferrugineum transit, forsitan post mortem insecti decolorata). Alarum apices subfusi.

Oculi divergentes sed leniter. Clypeus antice impressus, apice haud libero. Collare (propter impressionem transversam) postice marginatum videtur, angulis inferis prominulis non autem spinosis. Coxae anticae valde dilatatae acute cuneiformes. ♀ mesopleurae (desuper visae) latera in medio denticulo acuto armata. Propodei area media polita ac nitida, in medio sulco longitudinali divisa. Petiolus elongatus, marginibus lateralibus aequaliter convexis. Segmentum ventrale 2^{dum} patella, ut mihi videtur, basali instructum, sed valde minuta, semicirculari. ♂ corpus crasse punctatum, ♀ minus crasse sed tamen fortiter, inter puncta (♂ et ♀) evidenter nitidum.

Long. 6–9 mm.

This is evidently a very near ally of *albicincta*, Kl., but judging from Schletterer's diagnosis of that species, I scarcely think the two forms can be specifically identical. Schletterer expressly says that *albicincta* has no basal elevation of the 3rd (*i. e.* according to my reckoning the 2nd) ventral segment, but such an elevation seems to me certainly present in *eatoni*. Nor does he allude to the cuneiform production of the front coxae and the spine-like tooth on the ♀ mesopleura—characters which he would scarcely have overlooked had they existed in his *albipuncta* ♀. (The latter was *first* described by Schletterer, Klug's type being a ♂.)

It is certainly nothing else known to me. It is not *subimpressa*, nor *rubida*; and though several antiquated and altogether imperfect descriptions might be strained into more or less agreement with it as far as colour-characters are concerned, I think it is really useless to consider seriously to which of these it might with least improbability be referred; and believe that an erroneous identification of a species already described is likely to cause more trouble to future systematists, than the re-description of it under a new name, which can be "sunk," if necessary, hereafter as a synonym.

1 ♂. Biskra, on *Zizyphus lotus*, 30. iv, 95. A. E. E.

1 ♂, 1 ♀. Biskra, on *Zizyphus lotus*, 14. v, 97. A. E. E.

2 ♂ ♂. Biskra, on *Ammi visnaga*, 17. and 20. v, 97. A. E. E. (One of these a dwarfish specimen, hardly 6 mm. long!)

1 ♂. Biskra, "on the wing," 7. v, 97. A. E. E.

Cerceris komarovii, Rad.

This very remarkable species seems to be quite common at Biskra. The ♂, I believe, is still undescribed. As might be expected, it has *not* the dentate tempora of the ♀; but in colour and general appearance resembles it almost exactly, except that the yellow markings on its mesonotum are narrower than is usual in the ♀, which sometimes has them dilated to such an extent that practically the whole area appears yellow—much as in *lutea*.

I should describe it as follows—

♂. Structura maribus *priscae* et *capitonis* valde affinis. Color, ut in ♀, pallide citrinus; mandibulae apice et parce vertex nigro-maculata: mesonotum nigrum citrino 4-vittatum: Alae hyalinae, apicibus infumatis.

Clypeus haud dentatus, convexus, antice late deplanatus. Antennae apice subtruncato uncinatae; harum articulus ultimus incurvatus, basi subtus (cum parte apicali articuli penultimi) rotunde excavatus. Collare in medio impressum, lateribus callosis. Segmenta abdominis dorsalia 1–5 in medio, ante apices saltem, (nonnunquam a basibus ad apices,) lineis impressis vel foveolis plus minusve elongatis incisa. Segmentum 1^{mum} vix petioliforme, 2do non multo angustius. Segmentum ventrale 2^{dum} basi haud elevatum: 5^{tum} in medio a basi ad apicem semilunariter impressum, (are impressa pilis stratis curvis ita obtecta, ut credat aliquis segmentum ipsum profunde emarginatum esse:) 6^{tum} quinto haud dissimile, sed

impressione pilosa magis transversa; 7^{mum} pilis apice non fimbriato sed lateraliter fasciculato; 8^{vum} penicillis *quattuor* (!) ornatur, duobus in medio marginum lateralium (brevissimis), duobus apicalibus (tenuibus quidem sed longis). Metatarsus intermedius gracilis, curvatus, mox post basim ad apicem sensim dilatatus. Tempora subtus haud ut in femina dentata. Ocelli postici inter se multo magis quam ab oculis distant (!) Corpus, facies praesertim et segmentorum ventralium apices, pilis argenteis vestitum; his tamen, nisi sub certa lucis incidentia, vix conspicuis. Integumentum corporis (exceptis scutellis et areis quibusdam ventralibus) subopacum; propodei area media lateribus oblique striolatis et punctulis nonnullis obsoletis impressa nitore poene caret, areae eiusdem laterales cum dorso abdominis confertim sed haud profunde punctantur. Area pygidialis apice quam basi fere latior, certe haud angustior (!).

Long. circ. 13 mm.

Mr. Eaton notes that the eyes in this sp. are in life "light yellowish green."

2 ♂ ♂. Biskra, on *Zizyphus lotus*, 24. v, 94. A. E. E.
1 ♂. Biskra, on *Zizyphus lotus*, 22. v, 97. A. E. E.
2 ♂ ♂. Biskra, on *Ammi visnaga*, 25. v, 93. A. E. E.
1 ♂. Biskra, on *Ammi visnaga*, 21. v, 97. A. E. E.
3 ♀ ♀. Biskra, on *Ammi visnaga*, 23. v, 18 and 22 vi, 97. A. E. E.
5 ♂ ♂. } Biskra, 20. v to 9. vi, 98. F. D. M.
7 ♀ ♀. }

Cerceris capito, Lep.

1 ♂. Biskra, on *Tamarix*, 29. iv, 97. A. E. E.
5 ♂ ♂. Biskra, 17. v to 9 vi, 98. F. D. M.

Cerceris hartliebi, Schulz

This is probably the only recorded *Cerceris* which is practically black entirely—body, legs, and even wings! Certain parts, it is true, are obscurely rufescent, but its general appearance is of an insect uniformly black.

It was described first so lately as 1905 from a single ♀ taken in Tunisie (Sfax) by Rittmeister v. Hartlieb, and no corresponding ♂ form has as yet been recorded.

I must confess myself to be not quite convinced that it is anything more than a local melanic ♀ form of *capito*, with which species, until Dr. Schulz's description appeared, had intended to treat it as specifically identical. My

reasons were—(1) That, on comparing its structure and sculpture in detail with those of a typical *capito* ♀ from S. France, I could find no substantial difference except that the latter had certainly a larger head,—and the difference in this respect is not greater than that between two ♀ specimens from Egypt (determined for me by Herr Kohl) of the closely-allied species *prisca*, Schlett. Their punctuation seemed to me quite similar; and they agreed also as to the characters of clypeus, mandibles, petiole, cordiform and pygidial areas, ventral segments, mesopleural (tooth-like) tuberculations, etc., etc. (2) That ♂♂ of *capito* occurred in some numbers (and not accompanied by their normal ♀ ♀!) on the same flowers of *Ammi* with my *hartlicbi* ♀♀; but neither then nor afterwards could I find any ♂♂ of similar (black) coloration, though I naturally tried hard to do so, for I knew, of course, that an entirely black *Cerceris* must be something out of the common and probably undescribed.

I feel, however, that it may be rash to unite forms superficially so distinct, without more conclusive evidence than the above, and therefore follow Dr. Schulz in treating *hartliebi* as a good species.

4 ♀♀. Biskra, 19. v to 22. vi, 98. F. D. M.

Cerceris nasuta, Lep.

9 ♂♂, 2 ♀♀. Biskra, on *Ammi visnaga*, 19. v to 22. vi, 97. A. E. E.

1 ♂, 1 ♀. Biskra, on *Ammi visnaga*, 24. v, 93. A. E. E.

15 ♂♂, 7 ♀♀. Biskra, v and vi, 98. F. D. M.

Cerceris bucculata, Costa

From Costa's figures I feel satisfied that this must be his species, though I have seen no other specimens of it. The clypeus is exactly as he represents it, very like that of *ferreri* (= *propinqua*, Cost.), but *much* broader than long. These Algerian examples, however, seem to have more yellow on the abdomen than Costa's type; segments 1, 2, 4 and 5 having very broad fasciae, which are scarcely at all emarginate basally.

2 ♀♀. Biskra, on *Tamarix*, 19. and 30. v, 97. A. E. E.

Cerceris arenaria, L.

2 ♂♂. Médéa, on *Eryngium triquetrum*, 29. vi, 93. A. E. E.

1 ♀. Woods near Médéa, on (?) *Daucus setifolius,* 8. viii, 93. A. E. E.

1 ♂. Bône ("border of estuary—near the railway works"). A. E. E.

I think these are all *arenaria*, but the ♀ and the Bône ♂ seem to have wider and less emarginate yellow bands (esp. on segments 1 and 2) than normal European specimens.

(I am not quite certain that Mr. Eaton's record of *Daucus* as the plant visited by the ♀ refers to the insect to which I have attached it, but that is how I understand his note on the subject.)

Cerceris nitrariae, n. sp.

This is evidently one of those pale-yellowish species, very sparingly marked with black (chiefly on the vertex and mesonotum), and with somewhat silvery pilosity, which seem especially characteristic of the N. African desert-fauna. Unfortunately all the specimens before me seem to have had their original colour much altered by cyanide, and I have no means of ascertaining how far this circumstance is responsible for the varying combinations of different yellowish tints (cream-colour, fulvous orange, and even testaceous red) which their paler parts now exhibit. I think, however, that these parts were not even originally quite unicolorous—some being probably lacteous, and others distinctly lemon-yellow. Abandoning the attempt to distinguish these tints, the coloration of the insect may be described as "flavescens sparse nigro-maculata." The vertex is crossed by a wide black fascia which is produced in front (biramose) so as to embrace the insertions of the antennae. The mesothorax, the pleurae at least in part, and the shining "cordiform area" are black, and some at least of the abdominal segments (all in the ♂) are more or less widely black at their bases. As in most species the ♂ shows a greater extension of black not only on the abdomen but on the head and thorax than the ♀, *c. g.* in the latter the tempora are yellow or fulvous, but in the ♂ they are black as well as the vertex and only bear a small spot of yellow behind each eye. In both sexes the collar, tegulae, and postscutellum seem to be always yellow. The scutellum may be yellow, or merely spotted with that colour (or with red ?), or entirely black.

The following diagnosis indicates the chief structural characters which I notice in *nitrariae*. It will be seen that they agree to a surprising extent with those of a very differently-coloured species, viz. *luctuosa*, Costa. The latter, however, besides differing from *nitrariae* in colour, has a very much stronger and closer puncturation, as will be seen at once if the abdomens of the ♀ ♀ in the two species are looked at side by side.

♀. Clypeus apice in medio acute bidenticulato. Carina interantennalis usque ad ocellum anticum prolongata. Propodei area media laevis, nitidissima, impressione lineari longitudinaliter divisa. Petiolus transversus, cum sequentibus 4 segmentis ante apicem evidenter impressus vel sulcatus (longitudinaliter), area pygidialis subovalis, apice et basi angustatis, deinde subtruncatis, lateribus subdense fimbriatis. Segmentum ventrale 2^{dum} basi haud elevatum, penultimum (quantum video) simplex. Punctatura mediocriter fortis, nusquam rugosa, intervallis punctorum subnitidis; partim (*e. g.* in scutello) fere dispersa dici potest.

Collare lateribus gibbose elevatis in medio depressum, angulis inferis spiniformibus. Antennarum articuli 3 et 4 latitudine sua plusquam duplo longiores. Flavescens vel partim albescens, verticis fascia lata antice biramose producta nigra. Nigra sunt etiam—occiput (non autem tempora) mesonotum cum parte pleurarum, propodei area media (nonnunquam etiam areae laterales partim), et segmentorum abdominis dorsalium maculae basales subtriangulares (interdum obsolescentes).

♂ feminae simillimus, crassius punctatus, flavedine magis restricta. Caput postice nigrum, pone oculos flavo binotatum; thoracis latera tota (plerumque etiam propodeum totum) nigra; abdominis fasciae flavae angustiores quam in ♀. Antennarum articulus ultimus leniter curvatus, dein recte truncatus. Clypei margo apicalis evidenter dentatus.

Oculorum margines interni in utroque sexu fere paralleli. Alae hyalinae apicibus fuscis.

2 ♂ ♂, 1 ♀. Biskra, "visiting *Nitraria edentata*," 19. v, 97. A. E. E.

2 ♂ ♂, 2 ♀ ♀. Biskra, on *Ammi visnaga*, 15. v to 8 vii, 97. A. E. E.

Cerceris quadrimaculata, Duf.

1 ♂. Constantine, 16. vi, 94. A. E. E.

6 ♀ ♀. Constantine, 14.–18. vi, 98. F. D. M

CERCERIS TRISTIOR, n. sp.

This small dark species, of which I found ♀ ♀ only, in general appearance and coloration much resembles *quadrimaculata*, and occurred at the same place and time with that species. But, besides being very much smaller, it is at once distinguishable by its almost unsculptured "cordiform" area, and the shining surface of its head and thorax above, the punctures on which are comparatively small and sparse. The almost entirely black face with merely a small pale spot adjoining each eye (as in many *Prosopis* ♀ ♀) is a curious character, and appears in all my specimens.

♀. Nigra, nitida; macula in medio orbitae internae utriusque oculi, et segmentorum abdominalium 3ti 5ti que fasciis latis apicalibus (antice in medio emarginatis) flavis.

Antennae fulvescentes apicibus denigratis scapis flavis. Mandibulae breves (in medio marginis haud dentatae) fulvae apicibus nigris. Pedes cum tegulis alarum flavi vel plus minusve fulvescentes. Alae apicibus haud obscurioribus subfumatae, costa stigmate etc. brunneis.

Clypeus totus niger, forma simplici, sed valde tumidus (convexus). Segmenta ventralia omnino simplicia. Caput superne sparse, mesonotum cum scutello etiam sparsius punctatum; pleurae rugosae; propodei area media disco laevigato, lateribus subtilissime (fere microscopice!) striolatis; areae eiusdem laterales dense punctatae. Abdomen superne punctis mediocribus subnitidum, area pygidialis anguste subovalis, coriacea, plus minusve rufescens vel brunnescens.

Oculorum margines interni fere paralleli: ocelli inter se minus quam ab oculis distant.

Long. circ. 9 mm.

3 ♀ ♀. Constantine, 16. vi, 98. F. D. M.

CERCERIS QUADRICINCTA, Pz.

This is evidently an abundant species in Algeria, and must have, I should conjecture, more than one generation in the year. I have taken it as early as March (at Cherchell) and abundantly in April 1910 (in the Province of Oran), while Mr. Eaton's records of it extend from the middle of May to the 19th of September in various years. (It is rather curious that in '98 I do not seem to have met with it, but possibly I may have given away or mislaid my specimens.)

1 ♂. Near Azazga, on *Eryngium tricuspidatum*, 1. ix, 93. A. E. E.

1 ♂. Forest of Yakouren, on *Eryngium tricuspidatum*, 19. ix, 93. A. E. E.

1 ♂. Le Tarf, on *Foeniculum vulgare*, 26. vii, 96. A. E. E.

1 ♂. Biskra, on *Foeniculum vulgare*, 15. v, 97. A. E. E.

3 ♀♀. Biskra, on *Ammi visnaga*, 24. v and 3. vi, 93. A. E. E.

1 ♂. Bône, on *Tamarix* (?), 25. vii, 97. A. E. E.

1 ♀. Médéa, on *Eryngium triquetrum*, 27. vi, 93. A. E. E.

Cerceris laticincta, Lep.

This identification I owe to Herr Kohl.

My specimen is a very darkly-coloured insect, the body being entirely black except a small yellow spot above the base of the clypeus, a very broad orange fascia (covering the whole of the 2nd and 3rd abd. segments both dorsal and ventral!), and the tegulae, legs (except the coxae), and the base of the mandibles, which are also orange (but this colour on the mandibles is very obscure—perhaps darkened by cyanide?).

The constrictions between the abdominal segments appear to me slighter than is usual in *Cerceris*. The cordiform area is dull, somewhat coriaceously rugulose all over without distinct striations. The mesopleurae are strongly toothed or tuberculated in the middle as in *capito*, etc. The clypeus in my specimen has unfortunately been damaged (probably by a needle employed to open the mandibles), and I cannot describe its form in detail, but the apex appears to have been narrowly produced (porrect?) and perhaps incised in the middle (?). The eyes are divergent. The mandibles simple (*i. e.* untoothed within) and blunt at the apex. The surface of the body in general is rather shining, its puncturation neither very close nor coarse. The pygidial area is barrel-shaped, slightly narrowing to its apex, and coarsely rugulose. The broad petiole and the segments following are distinctly impressed before their apices in the middle. The length of the insect about 15 mm.

1 ♀. Biskra, 28. v, 98. F. D. M.

Cerceris schmiedeknechtii, Kohl

1 ♂, 2 ♀♀. Biskra, on *Ammi visnaga*, 18. v, 93. A. E. E.

1 ♂, 1 ♀. Biskra, on *Ammi visnaga*, 28. v, 94. A. E. E.

3 ♂♂, 4 ♀♀. Biskra, on *Ammi visnaga*, 15.–23. v, 97. A. E. E.

1 ♀. Médéa, on *Daucus carota*, 8. vii, 93. A. E. E.

11 ♂♂, 9 ♀♀. Biskra, 14. v–4. vi, 98. F. D. M.

The species is excessively like *specularis*, Costa, but has a much more closely-punctured abdomen; and the interrupted abdominal fasciae seem to be always narrower than in that species, which I have taken freely in Greece and Palestine but never in Algeria.

Philanthus triangulum, F.

Abounds everywhere, so it is needless to quote every record. Mr. Eaton found it visiting *Matricaria* (Alger), *Eryngium triquetrum* (Médéa), *Ammi visnaga* (Hippône and Biskra), *Teucrium polium* (Biskra), *Senecio* (Bône). Near Médéa a specimen was found at an altitude of over 3200 feet.

Many ♂♂ and ♀♀, from May to September inclusive, A. E. E. and F. D. M.

Philanthus variegatus, Spin.

Found by Mr. Eaton visiting *Nitraria tridentata*, *Tamarix*, *Zizyphus lotus*, and *Ammi visnaga*.

1 ♀. Biskra, 28. v, 94. A. E. E.

1 ♀. Biskra, 29. iv, 95. A. E. E.

2 ♂♂. Biskra, 11. and 24. v, 97. A. E. E.

4 ♀♀. Biskra, 30. iv–26. v, 97. A. E. E.

2 ♂♂. Alger, 11. iv, 98. F. D. M.

5 ♂♂, 10 ♀♀. Biskra, 16. v–12. vi, 98. F. D. M.

Philanthus rutilans, Spin.

1 ♀. Biskra, 24. iv, 94. A. E. E.

Philanthus komarovii, Morawitz (?)

1 ♂. Biskra (on the sandhills), 5. v, 97. A. E. E.

Philanthus melliniformis, Sm.

This is not (as D.T. Cat. makes it) a synonym of *venustus*, Rossi, but = the species described by Herr Kohl under the name *andalusiacus*.

1 ♂. Forest of Yakouren, on *Eryngium tricuspidatum* at altitude of 2000 to 3000 feet, 3. ix, 93. A. E. E.

2 ♂♂. Bône, visiting *Euphorbia paralias*, 14. viii, 96. A. E. E.

1 ♂. Bône, "commonly basks on stems of *Juncus maritimus*," 4. viii, 97. A. E. E.

Philanthus (Philoponus) théryi, Vach.

5 ♀♀. Biskra, on *Ammi visnaga*, 18. v, 93. A. E. E.
1 ♂. Biskra, 29. v, 94. A. E. E.
2 ♂♂. Biskra, 21. and 23. v, 97. A. E. E.
8 ♂♂ and 2 ♀♀. Biskra, 5. v–4. vi, 98. F. D. M.

Philanthus (Philoponus) sp. ?

1 ♀. Biskra, 28. v. 98. F. D. M.

This is probably "new," but I abstain from describing it as such on a single specimen. The abdomen bears lateral white spots on the basal segments, segment 1 is red, the other segments black. It is much more shining on the thorax (especially the prothorax in front, and the sides of the propodeum) than *théryi*, the body seems unusually pilose, and the spines of the legs (pecten, etc.) particularly long.

It is not *dewitzi* (!), the only *Philoponus* (besides *théryi*) with which I have had the opportunity of comparing it.

Astatus (or Astata ?), Latr.

I have hesitated a good deal as to my proper course in dealing with the records relating to this Genus. By some unlucky accident all save one of my own captures have escaped mention of any kind in Mr. Saunders's MS. list now lying before me. My determinations of these, therefore, have not his authority, and this I have thought it best to indicate by enclosing them between square brackets [ ]. But a greater difficulty is that on full consideration I find myself unable to agree with the conclusions to which (if I rightly understand his MS.) my friend had come, as to certain identifications of Mr. Eaton's insects; and yet I do not think I should be justified in silently ignoring those conclusions, and modifying the list he had prepared in accordance with my own notions. I shall therefore publish the list as he left it; and in cases where it seems necessary, shall record my dissent and the reasons for it between square brackets. As to the name of the Genus I should have preferred myself to acquiesce, as

v. Dalla Terre and most authors have done, in Latreille's emendation of his first proposed name, and written "Astata"; but this question I do not wish to argue; and, as I find "Astatus" employed throughout in the MS. list, it shall remain so.

ASTATUS BOÖPS, Spin.

1 ♂. Constantine, visiting *Thapsia garganica*, 17. v, 95. A. E. E.

1 ♀. Constantine, 17. vi, 98. F. D. M.

[My ♀ is, I have no doubt, *boöps*, as determined by Mr. Saunders. But it is a remarkably large specimen, and has exceedingly dark wings—quite as dark as in *fumipennis*, Saunders.]

ASTATUS MINOR, Kohl

1 ♂. Hippône, "eyes [in life] pitch brown, or rufo-piceous," 15, viii, 96. A. E. E.

1 ♂, 1 ♀. Le Tarf, "on *Foeniculum vulgare*," 24. vii, 96. A. E. E.

1 ♀. Biskra, "5–6.30 p.m," 11. v, 94. A. E. E.

1 ♀. Bône, "along the shore across the Seybouse," 3. ix, 96. A. E. E.

[I took a ♀ at Constantine 14. vi, 98, and 2 ♂♂ and 1 ♀ at Biskra 24. and 25. v, 98 (F. D. M.) which Mr. Saunders does not appear to have noticed when he revised the collections, but which seem to belong either to this species or the next. See below under *radialis*, Saunders.]

ASTATUS RADIALIS, Saunders

Described in Trans. Ent. Soc. 1910, Part. IV.

1 ♂, 3 ♀♀. Le Tarf, on *Foeniculum vulgare*, 24. and 26. vii, 96. A. E. E.

1 ♀. Bône, "along the shore across the Seybouse," 5. ix, 96. A. E. E.

1 ♀. Bône, "along the shore across the Seybouse," on *Euphorbia paralias*, 23. viii, 97. A. E. E.

[I cannot help feeling a doubt as to the association of the above ♂ with the ♀♀. The latter appear certainly unlike the ♀ ♀ called by Saunders *minor* which were taken in the same localities with them and (at Le Tarf) on the same plant. But except a slight and, as it seems to me, hardly specific difference in the truncation of the

radial cell I can find no reason to think that *all* the ♂♂ here recorded (after Saunders's MS.) as *minor* and *radialis* do not belong to the same species. Their agreement in antennal characters, degree of clouding in the wings, etc., outweighs (I think) the difference of neuration, which in *Astatus* spp. generally is often erratic. And if they be identical, I suspect they are the ♂♂ of Saunders's *minor*, rather than of his *radialis*. But further, I do not feel certain that the former species is really Kohl's *minor*, of which I possess several specimens named by the author. The ♂ antennae, to my eye, are not identical with those of *minor*, Kohl (det. ipse), the joints beneath being less convex and more simply so (not at all sinuate in the middle!). Also the ventral pilosity appears distinctly longer. They seem to me more to resemble the ♂ of a Spanish species kindly sent to me by Señor Mercet, under a name which I refrain from quoting as I am not sure that it is yet published.

As to *radialis* ♀, I feel pretty sure that it is really (or rather was when described) a "new" form. Whether it will prove to be more than a local variety of some species already described from other districts, is another question. Several of the characters which are commonly utilised in defining the species of this difficult Genus are, to my mind, likely to prove unreliable. Even such comparatively well-defined species as *boöps* and *stigma* are exceedingly variable, not only in colour-characters, but in neuration, size, and even sculpture; and many of the existing descriptions are based entirely on characters of this kind.]

Astatus laetus, Saunders

1 ♀. Biskra, on *Ammi visnaga*, 19. v, 97. A. E. E.

Astatus fumipennis, Saunders

1 ♀. Biskra, on *Ammi visnaga*, 25. v, 97. A. E. E.

The above two species are both described in Trans. Ent. Soc., *l. c.*

Notogonia nigrita, Lep.

1 ♂. Biskra, visiting *Moricandia arvensis*, 10. x, 97. A. E. E.

1 ♀. Hussein Dey (Alger), 4. iv, 93. A. E. E.

1 ♀. Biskra, "near the Barrage, on the neighbouring

hill, carrying off an Achetid from a stony slope." 22. iii, 97. A. E. E.

3 ♀♀. Biskra, 18. i, and 15. ii, 95; 12. iv, 97. A. E. E.
2♂♂, 1 ♀. Biskra, 4.–20. v, 98. F. D. M.
2♀♀. Alger, 19. and 21. iv, 98. F. D. M.

Notogonia pompiliformis, Pz.

1 ♂, 1 ♀. Biskra, on *Ammi visnaga*, 18. and 23. v, 93. A. E. E.
1 ♀. Biskra, on *Moricandia arvensis*, 10. ii, 97. A. E. E.
1 ♂, 3 ♀♀. Biskra, 30. iii, and 22. iv, 97. A. E. E.
1 ♀. Bône, 30. vii, 97. A. E. E.
1 ♂, 1 ♀. Biskra, 12. and 14, v, 98. F. D. M.
2 ♀♀. Alger, 16. iii and 12. iv, 98. F. D. M.

Notogonia sculpturata, Kohl

5 ♀♀. Alger, 16. iii–4. iv, 98. F. D. M.
1 ♂. Biskra, 16. v, 98. F. D. M.

Notogonia opalipennis, Kohl

1 ♀. Biskra, on *Ammi visnaga*, 24. v, 97. A. E. E.

Tachytes superbiens, n. sp.

This is by far the largest Palaearctic *Tachytes* known to me. In size and general appearance it agrees with *T. monetaria*, Smith, an Indian species. But on comparing it with the "type" of the latter at South Kensington (a ♀) I find that *monetaria* has the eyes further apart on the vertex, differently-clouded wings (darkest in the costal region and near the stigma and with only a small area slightly infuscated near the apex, while *superbiens* has them perfectly hyaline except at the apex, where a very broad and dark band runs along the margin), very different pilosity on the thorax (simple erect griseous hairs all over it), and a differently-coloured abdomen (the base being black, while in *superbiens* it is entirely testaceous). Nor is it *velox*, Smith, with whose "type" I have also compared it. It is far larger, and altogether different in colour and general appearance. It seems almost incredible that so magnificent a Palaearctic species should not have been long ago detected and described; and this is probably the reason that Mr. Saunders, though marking it as a "new species" in his list, has apparently neither

named it, nor prepared a description of it. I imagine that he expected to find one, when he should be able to return home and consult books which he had not by him in the seaside lodgings where his last MSS. were composed. I have failed, however, to encounter such descriptions; and as a search through the collections of *Larridae* (European, African, and Asiatic) in the British Museum (South Kensington) has revealed no species much resembling the present—except, as aforesaid, *monetaria*, Sm.—I can only treat it as new.

What Smith calls the "beautiful tessellated appearance" of the golden-haired abdomen in *monctaria* is a striking character also in *superbiens*. The same phenomenon is described in greater detail by Lepelletier in his account of *T. illudens* (but that is generally supposed to be a *Liris*, and it cannot, at any rate, be the insect now under consideration). Really the *whole* abdomen is clothed with minute golden hairs, but these only become visible when they reflect the light at certain particular angles; and the result is that, when looked at from behind, the abdomen appears chequered (like a chessboard) with alternate squares of light and darkness, these squares shifting their position, and sometimes actually becoming reversed, when the point of view is altered.

Nigra, dense punctulata; abdomine, mandibulis in medio, pedumque apicibus testaceis; tegulis ochraceo-flavidis; alarum superiorum margine apicali late infuscato, basi ac disco hyalinis. Pedes robusti, spinosi. Metatarsi antici serie subaequali 6 spinarum armati, spinis his in ♀ testaceis, validis, rectis, in ♂ albidis, multo minoribus.

Oculi in vertice (praecipue in ♂) valde approximati. Distantia horum longitudini antenn. artic. 4^ti^ in ♀, 5^ti^ in ♂ subaequalis (certe non maior sed ut videtur aliquanto minor quam in *T. freygessneri*, Kohl). Neque antennae, neque clypeus notam ullam singularem praebent. Huius pars apicalis in ♀ nonnihil deplanatur vel imprimitur, margine (in medio) subproducto, sed lenissime.

♀. Caput, thorax cum propodeo, basisque segmenti abdominalis 1^mi^, pilis tenuibus albidis subhirta. Praeterea facies, tempora pone oculos, latera thoracis plus minusve, pedesque partim (*e. g.* femora quatuor anteriora subtus), itemque margo mesonoti totus (*i. e.* antice postice et in lateribus) et postscutellum (non autem scutellum) pilis stratis vel substratis argenteis pulcherrime resplendent. Abdomen pube aureo-sericea revera quidem totum conspersum, specie vero, secundum lucis incidentias varias, varie tessellatum; (parte pilositatis

nunc hac, nunc illa, modo apparente, modo oculos fallente). Area pygidialis pilis rufescenti-aureis vestita.

♂. Pilositas dispositione similis, sed pallidior; neque argenteo- (facie excepta) neque aureo- tam distincte ac conspicue quam in ♀ micans.

Long. 17 mm. (♂)–22 mm. (♀).

1 ♂, 1 ♀. Bône, on *Statice*, 30. vii, 97. A. E. E.

2 ♂♂, 1 ♀. Bône, visiting *Cynanchum acutum*, 17. 18., and 20. viii, 97. A. E. E.

Mr. Eaton has noted that in life the eyes of the ♀ are greenish, those of the ♂ "pitch-black."

TACHYTES MACULICORNIS, Saunders

Described in Trans. Ent. Soc. 1910., Part IV.

2 ♂♂, 1 ♀. Biskra, on *Ammi visnaga*, 24. and 28. v and 19. vi, 97. A. E. E.

5 ♂♂, 5 ♀♀. Biskra, 18. v to 4. vi, 98. F. D. M.

The ♀ taken by Mr. Eaton was *stylopised*.

TACHYTES AENEA, Saunders

Described in Trans. Ent. Soc., *l. c.*

2 ♂♂. Biskra, "near railway, kilom. 199," 25. iv, 97. A. E. E.

TACHYTES FREYGESSNERI, Kohl

3 ♂♂. Bône, "on sandy ground," 29. vii, 97. A. E. E.

2 ♀♀. Médéa, on *Daucus setifolius*, 30. vii and 2 viii, 93. A. E. E.

2 ♀♀. Biskra, on *Ammi visnaga*, 18. vi and 2. viii, 97. A. E. E.

"Eyes of ♂ dull green" . . . "eyes of ♀ green" (A. E. E. MS.).

TACHYTES BISKRENSIS, Saunders

Described in Trans. Ent. Soc., *l. c.*

1 ♂, 1 ♀. Biskra, on *Ammi visnaga*, 22. vi, 97. A. E. E.

(In the Coll. the ♂ is accidentally ticketed as a ♀.)

TACHYTES SIMILLIMA, Kohl

3 ♂♂, 4 ♀♀. Biskra. "Eyes caesious, visits *Zizyphus lotus*," 25. iv, 97. A. E. E.

6 ♂♂, 5 ♀♀. Biskra, 9. v–11. vi, 98. F. D. M.

Tachytes tricolor, F.

1 ♂. Biskra, " visiting *Amberboa lippii* ; eyes light greenish or light yellowish-green," 11. iv, 95. A. E. E.

1 ♂. Le Tarf, in the cornfields on *Ammi visnaga*, 27. vi, 96. A. E. E.

Tachytes obsoleta, Rossi

1 ♂. Biskra, 9. v, 98. F. D. M.

This specimen was determined by Herr Kohl.

Tachytes ambidens, Kohl (det. ipse !)

1 ♀. Biskra, 26. v, 98. F. D. M.

Tachytes europaea, Kohl

2 ♂♂. Between Tizi Ouzou and Azazga, on *Mentha* : " eyes light sap-green," 13. vi, 93. A. E. E.

1 ♀. Médéa, on *Eryngium triquetrum* : " eyes black," 26. vi, 93. A. E. E.

Tachysphex syriacus, Kohl

Mr. Saunders in his MS. list calls this species " *heliopolites,* Morice." But I am satisfied that it is not the species described by me under that name from Egypt. It is far larger. The hairs of the face are silvery in the ♀, fuscous or even black in the ♂. (In *heliopolites* both sexes have the face white-haired.) The pygidial area of the ♀ is different both in shape and sculpture (*vide infra*—in *heliopolites* it is tectiform, shining, and very slightly striated, almost smooth except for a few large but ill-defined punctures). The ♂♂ quite agree with specimens from Egypt which were determined for me as *syriacus* by the author, and so I venture to call it. (In rubbed specimens only two bands of silvery hairs appear on the abdomen, and Kohl's original description gives this as a character of his species. But others in better condition show 3 or even 4 complete silvery bands in a good light. They are best seen by looking at the specimen from in front.)

As I am not aware that the ♀ has yet been described, I give a diagnosis of its characters.

♀ mari simillima. Nigra, abdomine concolore, albido-pilosa. Frontis, clypei, etc., pilositas argentea, non (ut in ♂) fusca vel nigra. Segmentorum abdominalium apices fasciis latis argenteis ornati, revera continuis, quamvis, postice visae, interruptae videan-

tur. Mandibulae basibus argenteo-pilosis, in medio cum parte pedum (tarsis, tibiarum apicibus, etc.) testaceae. Tegulae venaeque alarum lutescentes. Harum cellula cubitalis 2da superne angusta, 3^{tia} latior ; forma huius paene ut in *T. panzeri.*

Metatarsi antici spinis plurimis (12–13) longis sed tenuissimis pectinati. Oculi in vertice circiter antenn. articuli 3^{tii} longitudine (vel paullo minus) inter se distant. (Minus certe quam in *T. fluctuato.*) Area pygidialis opaca, plana, dense granulosa (vel reticulato-punctulata), punctis nonnullis maioribus subobsoletis conspersa.

Long. circ. 13 mm.

1 ♂. Médéa, on *Daucus setifolius,* "Eyes light egg-yellow," 8. viii, 93. A. E. E.

1 ♂, 1 ♀. La Calle, 4. and 19. vii, 96. A. E. E.

1 ♂. Le Tarf, "visiting heads of *Cynara cardunculus,* 23. vii, 96. A. E. E.

2 ♂♂, 1 ♀. Biskra, on *Ammi visnaga,* "Eyes of ♂ light yellowish green, of ♀ dull greenish," 20.–25. v, 97. A. E. E.

1 ♂. Bône, "Eyes bright yellow," 30. vii, 97. A. E. E.

3 ♂♂. Biskra, 20. and 30. v, 98. F. D. M.

TACHYSPHEX FLUCTUATUS, Gent.

1 ♂. Biskra, 28. iv, 95. A. E. E.

2 ♂♂. Biskra, on *Ammi visnaga,* "Eyes bright yellow or greenish yellow, according to the point of view," 22. vi, 97. A. E. E.

1 ♂. Bône, on *Euphorbia paralias,* 5. viii, 96. A. E. E.

1 ♂. Biskra, on *Ammi visnaga,* 18. vi, 97. A. E. E.

(A very large specimen with red legs and dull-red base to the abdomen. Mr. Saunders submitted it to Herr Kohl, who considered that it was a variety of *fluctuatus.*)

3 ♂♂. Biskra, 18.–25. v, 98. F. D. M.

So many specimens having occurred, it seems rather curious that all were ♂♂.

TACHYSPHEX FILICORNIS, Kohl

1 ♀. Hussein Dey, 4. iv, 93. A. E. E.

1 ♀. Alger, 18. iv, 93. A. E. E.

1 ♀. Biskra, 19. v, 98. F. D. M.

TACHYSPHEX MEDITERRANEUS, Kohl

1 ♀. Philippeville, 21. vi, 98. F. D. M.

Tachysphex nitidus, Spin.

1 ♂, 1 ♀. Biskra, on *Euphorbia guyoniana*, 1. ii, 95. A. E. E.

1 ♂. Médéa, on *Eryngium triquetrum*, 29. vi, 93. A. E. E.

5 ♂♂, 2 ♀♀. Biskra, 2. iii, 95 and 6.–21. iv, 97. A. E. E.

2 ♂♂, 1 ♀. Bône, 3. ix, 96 and 31. vii, 97. A. E. E.

8 ♂♂, 3 ♀♀. Alger, 29. iii–21. iv, 98. F. D. M.

5 ♂♂, 3 ♀♀. Biskra, 5.–20. v, 98. F. D. M.

(?) 1 ♂. Biskra (probably *nitidus*, but Mr. Saunders notes of it, "has the vertex rather more convex and narrower than in normal specimens"), 20. v, 98. F. D. M.

Tachysphex eatoni, Saunders

Described in Trans. Ent. Soc. 1910, Part IV.

1 ♀. Biskra (road to Hammam es Salahin), 5. iv, 97. A. E. E.

Tachysphex, sp.? (probably *schmiedeknechti*, Kohl)

1 ♀. Biskra, 19. v, 98. F. D. M.

Tachysphex philippi, Saunders

Described in Trans. Ent. Soc. 1910, Part IV.

1 ♀. Philippeville, 21. vi, 98. F. D. M.

Tachysphex costae, Kohl

1 ♂. Biskra, on *Ammi visnaga*, "eyes yellow," 22. vi. 97. A. E. E.

Tachysphex julliani, Kohl

1 ♂, 2 ♀♀. Biskra 29. v, 98. F. D. M.

Tachysphex lativalvis, Thoms. (Black variety.)

1 ♀. Bône, "visiting *Euphorbia paralias*. Eyes piceous," 2. viii, 97. A. E. E.

Tachysphex pygidialis, Kohl

3 ♂♂. Biskra, on *Ammi visnaga*, 25. v, 93 and 15.–24. v, 97. A. E. E.

4 ♂♂. Biskra, among *Tamarix*, etc., above the barrage, 10. and 11. iv, 97. A. E. E.

Of these specimens Mr. Eaton notes: "Eyes yellowish green. Basks on the sand with antennae porrect, and though common is hard to catch, because it very often

frequents spots at the borders of bushes and under the ends of their branches."

1 ♂. Bône, on *Euphorbia paralias*, 5. viii, 97. A. E. E.

1 ♀. Le Tarf, "visiting heads of *Cynara cardunculus*," 23. vii, 96. A. E. E.

1 ♀. Biskra, on *Zizyphus lotus*, 25. iv, 97. A. E. E.

2 ♀ ♀. Biskra, about *Nitraria tridentata*, 21. and 28. v, 97. A. E. E.

3 ♂ ♂. Constantine, 15. and 17. vi, 98. F. D. M.

1 ♂. Philippeville, 20. vi, 98. F. D. M.

9 ♂ ♂ and 3 ♀ ♀. Biskra, 4. v. to 30. vi, 98. F. D. M.

This is probably the commonest of all *Tachysphex* spp. in Algeria, occurring everywhere, and under all sorts of circumstances.

Tachysphex psilopus, Kohl

3 ♂ ♂. Biskra, "above the barrage. Eyes dull light yellowish green," 4.–18. iv, 97. A. E. E.

3 ♂ ♂. Biskra, 5. v and 1. vi, 98. F. D. M.

Tachysphex [eduardi], Saunders

Described in Trans. Ent. Soc. 1910, Part IV.

1 ♂. Biskra, on *Zizyphus lotus*, 30. iv, 95. A. E. E.

2 ♂ ♂. Biskra, "eyes light yellowish green," 22. iv, 97. A. E. E.

1 ♀. Bône, "visiting *Eryngium triquetrum*," 6. viii, 96. A. E. E.

Tachysphex pectinipes, L.

1 ♀. Constantine, 16. vi, 98. F. D. M.

It would seem that this extremely common European species is quite a rarity on the other side of the Mediterranean! (Kohl, however, mentions North Africa as one of its habitats, and this specimen was submitted to and its determination verified by him.)

Tachysphex gracilitarsis, Saunders

Described in Trans. Ent. Soc. 1910, Part IV.

16 ♀ ♀. Biskra, 30. v to 9. vi, 98. F. D. M.

Although the ♀ ♀ were so abundant, I do not seem to have taken any ♂ ♂, and I had very nearly the same experience in the same locality with the allied species *panzeri*. The ♀ ♀ are of course larger and more striking

insects than their partners ; and it may be that, finding them simply swarming on *Ammi visnaga,* I unconsciously limited my captures to what appeared the finest specimens. (Or, possibly, the ♂ ♂ of *gracilitarsis* were "over" at Biskra before I arrived, but this seems less likely.)

Tachysphex panzeri, Kohl

1 ♂, 1 ♀. Biskra, 18.–24. iv, 97. A. E. E.

1 ♂. Médéa, on *Centaurea nicaeensis* (or *Scabiosa maritima* ?), 26. vi, 93 A. E. E.

1 ♂. Aine Draham (Tunisie), 22. vi, 96. A. E. E.

2 ♀ ♀. Biskra, on *Ammi visnaga*, 24. v, 97. A. E. E.

1 ♀. Biskra, on *Nitraria tridentata*, 21. v, 97. A. E. E.

2 ♂ ♂, 1 ♀. Bône, on *Salsola kali*, 19. and 20. viii, 97. A. E. E.

2 ♂ ♂, 1 ♀. Bône, 30. vii, 97. A. E. E.

From Mr. Eaton's notes I gather that the eyes of the ♂ ♂ were generally bright or yellowish green ; those of the ♀ ♀ darker, bluish or sea-green (glaucous).

8 ♀ ♀. Biskra, 6. v–7. vi, 98. F. D. M.

1 ♀. Constantine, 15. vi, 98. F. D. M.

Tachysphex panzeri, var. oraniensis

1 ♀. Biskra, on *Ammi visnaga*, 30. v, 97. A. E. E.

Tachysphex panzeri, var. discolor

1 ♂. Biskra, 21. iv, 97. A. E. E.

1 ♂. Biskra, 7. v, 98. F. D. M.

Tachysphex vestitus, Kohl

1 ♂. Biskra ("Hammam es Salahin on the sandhills"), 5. v, 97. A. E. E.

1 ♀. Biskra, 20. v, 98. F. D. M.

Mr Saunders has a note in the margin of his list as follows :

"The ♂ specimen of this species was named for me by Kohl himself. The ♀ which I associate with it resembles the ♂ in the dense silvery (in some lights more or less golden) pubescence which so clothes the head, thorax and propodeum that the sculpture is invisible. The vertex between the eyes is about equal to the length of the 2nd joint of the flagellum. The abdomen (which is broadly banded with silvery pubescence), and the legs are entirely

clear testaceous. The front metatarsi with a comb of seven long pale spines, the two basal ones shorter than the others."

TACHYSPHEX PSAMMOBIUS, Kohl

1 ♀. Constantine, "visiting *Echium caeruleum*," 16, v. 95. A. E. E.

TACHYSPHEX CAPITALIS, Saunders

Described in Trans. Ent. Soc. 1910, Part IV.
1 ♀. Biskra, 9. vi, 98. F. D. M.

TACHYSPHEX PIAGETIOIDES, Saunders

Described in Trans. Ent. Soc. 1910, Part IV.
1 ♀. Biskra, 12. v, 98. F. D. M.

TACHYSPHEX, sp.?

3 ♂♂, probably belonging to one species, and undescribed; but without the other sex, and possessing as they do no striking characters, it seems impossible to deal with them satisfactorily.
Biskra, 6.–12. v, 98. F. D. M.

TACHYSPHEX, sp.?

A single ♂ with the antennae evidently deformed.
Biskra, 14. v, 98. F. D. M.

ANCISTROMMA EUROPAEA, Mercet

1 ♀. Azazga (at an altitude of 1600 feet), 22. ix, 93. A. E. E.

This species, and also the Genus to which it is referred, are very recent additions to the Palaearctic Fauna. Both were introduced along with a second species (*A. maligna*) by Señor Mercet in February 1910. Mr. Eaton's specimen was taken some years before the earliest capture yet recorded of a Palaearctic *Ancistromma*, and is also (I believe) the only one hitherto recorded as occurring elsewhere than in Spain. Previous to 1910 the genus was known only as North American; and it was first established (by W. J. Fox) in 1903—the same year in which Mr. Eaton made his capture! (Cf. Kohl *Die Gattungen der Sphegiden*, Genus 38.)

Prosopigastra moricei, Mercet

Described in *Boletin de la Real Soc. española de His. nat.*, July 1907, from one of the specimens here recorded. The species is so like *P. laevior*, described by myself in 1897 from Egypt, that neither Mr. Saunders nor I had considered it distinct, and, in fact, I sent it to Señor Mercet as a "duplicate" of *laevior*. In Mr. Saunders's MS. list it still bears the latter name, but I think he had not seen the specimens since the description of *moricei* was published. The ♂♂, both of *laevior* and *moricei*, are still unknown; the chief difference between the ♀♀ lies in the form and sculpture of the "area pygidialis" (*vide* figs. 2 and 3 in Mercet's Paper).

4 ♀♀. Constantine, 16.–18. vi, 98. F. D. M.

Prosopigastra insignis, Saunders

Described in Trans. Ent. Soc. 1910, Part IV.

The species, or at least the type-specimen here recorded, is quite startlingly larger than any of our other *Prosopigastra* spp.!

1 ♀. Biskra, 11. vi, 98. F. D. M.

Gastrosericus moricei, Saunders

Described in Trans. Ent. Soc., *l. c.*

1 ♀. Biskra, 7. vi, 98. F. D. M.

Dinetus simplicipes, Saund.

Described in Trans. Ent. Soc., *l. c.*

4 ♂♂. Bône, 4. vi, 96. A. E. E.

Mr. Eaton notes as to these specimens, "Eyes tinged towards the orbits in front and behind with brownish, this colour leaving the middle lateral space (from the jaw upwards) olive-greenish, and intersected subvertically by a movable dark streak that slants downwards towards the lower end of the posterior orbit."

1 ♂. Le Tarf, 17. vi, 96. (A. E. E.)

Dinetus dentipes, Saund.

Described in Trans. Ent. Soc., *l. c.*

3 ♂♂, 1 ♀. Biskra, 30. iv, 94. A. E. E.

"Agile and difficult to net. . . . They rest on the sand, with antennae porrect and close together. Often near

Cynodon dactylon, and beside hummocks of *Limoniastrum guyonianum*." (A. E. E. MSS.)

3 ♂♂. Biskra, 6. and 9. iv, 97. A. E. E.

LAPHYRAGOGUS PICTUS, Kohl

1 ♀. Biskra, on *Ammi visnaga*, 6. v, 98. F. D. M.

I think I took at least one other specimen, but gave it away very soon. The same species has occurred to me at Cairo, but only ♀♀. The ♂, if I mistake not, is still unknown.

PALARUS HUMERALIS, Duf.

2 ♂♂, 1 ♀. Médéa, on *Eryngium triquetrum*. "Eyes of ♂ reddish-brown," 27. vi and 10. vii, 93. A. E. E.

5 ♂♂, 4 ♀♀. Biskra, on *Ammi visnaga*, 19. v–22. vi, 97. A. E. E.

7 ♂♂, 11 ♀♀. Biskra, 6. v–9. vi, 98. F. D. M.

PALARUS LEPIDUS, Kl.

The synonymy of the smaller *Palarus* spp. is much confused, and Mr. Saunders appears to have had some doubt what to call these specimens.

They agree entirely with Egyptian insects in my collection which were determined for me by Herr Kohl as *lepidus*. I did not find this species in Algeria myself; probably I left before it had appeared.

1 ♂. Médéa, on *Eryngium triquetrum*, 29, vi, 93. A. E. E.

1 ♀. Médéa, on *Eryngium triquetrum*, 28. vi, 93. A. E. E.

1 ♀. Aine Kriar, 22. vi, 96. A. E. E.

PALARUS SP. ? (*laetus*, Kl., sec. E. Saunders)

Mr. Saunders considered this to be a ♀ of *laetus*, Kl., of which, according to Herr Kohl i. litt., *histrio*, Spin., is a synonym. As I only know ♂♂ of *laetus* (taken by myself in Egypt and determined by Kohl), I cannot say for certain that this is not its ♀; but I am more inclined to think that it belongs to the species next to be recorded whose ♂ was taken in the same locality (Biskra), and in general appearance agrees extremely well with it. (I believe that *laetus* is only recorded from Egypt, though it is quite likely that it may occur also in Algeria.) But it must be admitted that the present insect agrees perfectly with

Klug's description of *laetus* ♀, except that the antennae cannot, I should say, be called "fusco-annulatae."

1 ♀. Biskra, on *Ammi visnaga*. "Eyes bluish-ash," 8. vii, 97. A. E. E.

PALARUS DISPUTABILIS, n. sp.

♂. *P. laeto*, Kl., fere omnibus notis similis: sed forma segmenti ventralis 2^di^, pygidii et scutelli, certe (ut opinor) distinctus.

Antennae pedum que bases vix conspicue infuscatae. Scutellum totum flavum, magis transversum quam in *laeto*, forma trapezoidali, antice quam postice multo latius. Segmenti ventralis 2^di^ pars apicalis callose quidem assurgens, sed leniter ac sensim, haud (ut in *laeto*) a latere visa in formam tuberculi magni subquadrati elevata. Abdomen apice haud "tridentato," sed potius uni-mucronato (angulis lateralibus pygidii non dentiformibus, sed omnino obtusis vel rotundatis; apice medio solum in mucronem satis longum producto). Segmenta abd. dorsalia 1–5, quodque ante flavedinis suae apicem utrinque maculam minimam curvatam, vel potius impressionem, tenuem sed distinctam, plus minusve decoloratam, spiraculo haud dissimilem, exhibet: cuius rei in *P. laeto* ne vestigium quidem invenire potui.

Oculi (nunc quoque, hoc est post duodecim annos !) colore omnino alio atque in *laeto*; scilicet rufo-brunneo suffusi (in *laeto* potius virescentes).

Scapi antennarum antice flavi (in *laeto* obscuri).

Long. circ. 8 mm.

The above characters appear to me amply sufficient to distinguish *disputabilis* ♂ from *laetus* ♂. Unfortunately the most important of them relate to points of structure in which the sexes differ, and cannot therefore be used to ascertain their respective ♀ ♀.

Two of them at least, however, viz. (1) the feeble discoloured impressions at the side of each abdominal yellow fascia (looking like a row of spiracles down each side of the dorsum) and (2) the transverse trapezoidal form of the scutellum and its entirely yellow colour, appear in the ♀ just mentioned, and called by Mr. Saunders *laetus* ♀. On this ground, and also on account of its complete general resemblance to *disputabilis* ♂, and its occurrence in the same locality at a slightly later date in the season, I believe it to be the ♀ of the latter.

(I ought to say that in *lepidus* also, though not in *laetus*, I can see indications of spiracle-like impressions in the

yellow abdominal fasciae, but they are not nearly so noticeable as in the insects now under consideration.)

1 ♂. Biskra, 6. vi, 98. F. D. M.

(?. 1 ♀. Biskra, 8. vii, 97. A. E. E. *Vide* above.)

Nysson braueri, Handl.

1 ♂. Le Tarf, on *Foeniculum vulgare*, 26. vii, 96. A. E. E.

1 ♂, 2 ♀♀. Biskra, on *Ammi visnaga*, 23. v–19. vi, 97. A. E. E.

1 ♂. Biskra, 27. v, 98. F. D. M.

I cannot find any records of the capture of this insect since it was described by Handlirsch from a single ♂ (taken at Sétif, Province of Oran) in the Vienna Museum. My specimen was determined by Kohl.

The ♀ is therefore, I suppose, undescribed. As might be expected, its structural characters (like those of the ♂) connect it closely with *scalaris*. The antennae, however, and also the scutellum with the adjoining posterior corners of the mesonotum, and the apex of the pygidial area are fulvous or yellowish (not black); and the latter area appears somewhat more strongly and regularly punctured. The silvery tomentum, characteristic of many desert species, is very conspicuous in these insects. The carinated frontal tubercle seems to me to be quite identical in the two forms. In fact, I can see nothing except colour and pubescence-characters to distinguish them.

Nysson epeoliformis, var. ditior, var. nov.

I am not sure but that this form has as good a claim as *braueri* to be described as a distinct species. It differs from typical *epeoliformis* very much as *braueri* from *scalaris*. The antennae are not infuscated except at their extreme apices. The whole pronotum, nearly the whole of the mesopleurae, the whole scutellum and postscutellum, and a great part of the propodeal spines are yellow, and the abdomen is principally of that colour, none of the fasciae being interrupted, and only those of segments 2 and 3 being incised (triangularly) at their bases. Its puncturation and rugulosities (propodeal, etc.) appear weaker and shallower than in *epeoliformis* ♂♂ from Albania; but the difference is slight, and in all main points of structure it agrees with the latter so exactly that I cannot convince myself of its specific distinctness.

(In one specimen the 2nd and 3rd cubital nervures are *exactly* confluent on the radius, in the other they are separated by an exceedingly small interval—about equal to the thickness of the radius itself.) The quadridenticulate clypeus is exactly that of *epeoliformis*.

2 ♂♂. Biskra, 9. v, 98. F. D. M.

Nysson, sp.?

1 ♀. Médéa, 29. vi, 93. A. E. E.
1 ♀. Bône, 10. vi, 96. A. E. E.
1 ♀. Philippeville, 20. v, 98. F. D. M.

This is perhaps undescribed, but I think it better not to give it a name, especially as I have a suspicion that it may be the other sex of a new Spanish ♂ kindly communicated to me by Señor Mercet. In size and colour it resembles *dimidiatus*, but is much more strongly punctured, the antennae (at least beneath) are distinctly pale, and the collar bears two transverse oval spots of yellow which are conspicuous and quite similar in all three specimens.

Nysson erubescens, n. sp.

1 ♂. Biskra, 24. v, 93. A. E. E.
1 ♀. Biskra, 4. vi, 98. F. D. M.

This species, I think, must be new. In colour it seems very nearly, though not in every detail, to resemble *rufus*, Hdl., of which the author only knew the ♀. But in structure it appears to be altogether unlike that species, having a distinct though small tuberculation between the antennae, a different form of 2nd ventral segment, and a perfectly normal ♀ pygidial area.

Rufo-testaceus, argenteo sericans ac partim pilosus, capite et sternis nigris, propodeo (♂) et abdominis dorso (♂ et ♀) plus minusve nigricante vel nigro (in ♀ solum lateraliter). Flavent antennarum fulvescentium bases antice, mandibulae in medio, clypeus, pronoti fascia subinterrupta basalis, tegulae alarum, pedumque fulvescentium tibiae cum genubus externe. Segmentum abd. dorsale 1^mum^ macula magna utrinque flava, segmenta 2–4 fasciis angustis flavis ornata, his in ♀ vix, in ♂ latius interruptis. Spinularum propodealium apices albidi.

Tempora pone oculos satis longe distincte marginata. Frons inter antennas quasi in tuberculum elevata et plus minusve rufescens. Antennae in ♂ subclavatae articulo ultimo curvato ac truncato, penultimis 2 simul sumptis parum breviore. Segmentum ventrale

2^{dum} basi truncatum potius (sed obtuse) quam simpliciter rotundatum : segm. ventralia subapicalia fimbriis nullis. Pygidium ♂ bidentatum vel bispinosum, ♀ simplex (haud ut in *rufo* quasi-bidenticulatum). Collaris anguli apicales bene definiti, in ♀ etiam acuti.

Puncta corporis subcoriacei mediocriter densa ac crassa.

Alae anticae venae cubitales 2 et 3 in radio haud confluentes, sed inter se fere tantum distantes quantum cellulae 2^{dae} apex a radio. Area analis alae posticae paullo post originem cubiti terminata.

Long. circ. 6 mm.

ALYSON RATZBURGI, Dhlb.

2 ♂♂, 1 ♀. Constantine, visiting *Thapsia garganica* 17. and 18. v, 95. A. E. E.

DIDINEIS NIGRICANS, n. sp.

1 ♂. Biskra, 24. v, 98. F. D. M.

Species *D. crassicorni*, Hdl., statura parva, antennarumque articulis penultimis latitudine sua haud longioribus, similis et affinis. Differt tamen articulo harum ultimo simpliciter curvato et elongato (haud contorto) fere ut in *D. lunicorni* sed evidenter crassiore : item clypeo, orbitis oculorum, scapis antennarum, tegulis alarum, tuberculisque humeralibus flavedine omnino carentibus ; facie inferne non argenteo—sed potius pallide aureo—pubescente ; segmentis que abdominis basalibus haud distincte rufis, sed poene totis nigris, tantum marginibus ipsis valde obscure rufescentibus.

Clypeus evidenter tridentatus. Vertex politus, fere impunctatus. Thorax cum abdomine toto superne subtilissime punctatus, et inconspicue breviter pilosus. Puncta abd. segmenti 1^{mi} sparsa sed distincta, reliqui corporis densiora. Abdomen infra pilis longis sub-pilosum.

Long. 5 mm.

This ♂ seems clearly to stand nearer to *crassicornis* than to *lunicornis*, but to be in certain respects intermediate between them. It seems far too small to be the ♂ of either *wustnei* or *pannonica*, since Handlirsch puts the length of their ♀♀ at 9–10 mm. and 9 mm. respectively. These species are only known from the north part of the Balkan district (Dalmatia, Hungary), and it is perhaps not very likely that they should occur in Algeria.

It must certainly be a close ally of *crassicornis*, but the differences indicated above appear to me sufficient excuse for treating it as specifically distinct.

It differs from any *Didineis* yet described in not having

the base of the abdomen red, but whether this character is specific or individual must be decided by means of further captures.

Gorytes rhopalocerus, Hdl.

1 ♂. Biskra, on *Ammi visnaga*, 21. v, 97. A. E. E.

Gorytes saharae, Hdl.

1 ♂. Biskra, on *Deverra chlorantha*, 13. v, 97. A. E. E.
1 ♀. Biskra, on *Ammi visnaga*, 30. v, 97. A. E. E.

The ♂ I believe is undescribed. It is exceedingly like *rhopalocerus*, but differs from it (as does its ♀) in being considerably more strongly and deeply punctured and in having all the hind tarsi conspicuously annulated at their apices with black. (In *rhopalocerus* there is no black on any of them except the claw-joint!)

Mr. Saunders in his MS. alludes to these specimens, and also that which I call *rhopalocerus*, as "rufinodis?". But I feel sure they are to be separated and named as above (cf. Handlirsch's Supplement to his Monograph). *Rufinodis* is an *Eastern* form, and not (as yet) known except from the Araxes-valley in Armenia.

Gorytes gazagnairei, Hdl.

1 ♂. Sidi Ferruch (on coast to west of Alger), 8. v, 93. A. E. E.
1 ♂. Constantine, visiting *Thapsia garganica*, 18. v, 95. A. E. E.
1 ♂. Bône, on *Mentha rotundifolia*, 10. viii, 97. A. E. E.
1 ♀. Philippeville, 20. vi, 98. F. D. M.

Gorytes fairmairei, Hdl.

2 ♂♂. Constantine, visiting *Ferula communis*, 14.–22, v, 95. A. E. E.
1 ♂. Bône, on *Euphorbia helioscopia*, 4. v, 96. A. E. E.

I found this little-known species quite abundant in both sexes, always on *Ferula*, at Hammam-bou-hadjar (Province of Oran) in April 1910.

Gorytes pleuripunctatus, Costa

2 ♂♂. Constantine. "Both asleep, standing on all their legs, with wings half open, and chins rather tucked in, fully exposed—a few inches apart—on a leaf of

Athamantha sicula . . . in an old quarry," 31. v, 95. A. E. E.

1 ♂. Bône, 23. v, 96. A. E. E.

None of these males have the antennae simply black except the yellow scape (cf. Handlirsch Mon.), but quite fulvous beneath and nearly so above until the last 3 or 4 joints, which *are* black practically. (On this account Mr. Saunders's MS. queries them as "*pleuripunctatus*?". But I have similar ♂♂ determined by Kohl and Schmiedeknecht, and the character seems to vary indefinitely in different specimens.) In one specimen only the sides of the propodeum are marked with yellow, and this is the case also with an Oran ♂ in my collection.

GORYTES (HARPACTUS) LAEVIS, Latr., var. (?)

1 ♂, 1 ♀. Biskra, 13. and 16. iv, 97. A. E. E.

I give the name with a note of interrogation because I have reason to think that Mr. Saunders referred these specimens to *pulchellus*, Costa. Apart from descriptions the latter species is not known to me for certain. But I am quite convinced that the present insects are only a form (closely resembling in some points that described by Radoszkowsky under the name *morawitzi*) of the widely-distributed and variable species to which I here assign them.

The yellow markings are exactly as in normal *laevis*, except that the 1st abd. segment is immaculate. The vertex behind the eyes, the whole dorsal surface of the thorax, except the black middle area of the propodeum, and the base of the abdomen are red.

Having compared these insects with many specimens of *laevis* from other Mediterranean countries, I find no character of structure or sculpture on which to separate them. But they are rather small (circ. $5\frac{1}{2}$ mm.) and differ from all my other specimens in having the hind tibiae and tarsi not fuscous but clear testaceous, segm. 1 entirely red, and segm. 2 mostly of that colour, but banded or spotted at its base with black, and with a yellowish-white apical fascia dilated at its sides exactly as in normal *laevis*.

(Handlirsch, perhaps on Shuckard's authority, makes *laevis* not only a common Palaearctic, but even a *British* insect. This, I think, is a mistake. But its range is certainly very wide. It has been taken by Saunders on

the coast of Brittany; by myself in Spain, South France, Greece, Anatolia, Syria, and Egypt; and it was found by Handlirsch himself in Algeria, though in a variety differing considerably from that here recorded. If the present form be thought to require a distinguishing name, I would suggest "*pyrrhobasis*, var. nov.")

Gorytes (Harpactus) delicatulus, n. sp.

A very small, brightly-variegated species; no doubt nearly allied to *laevis*, *pulchellus*, etc., and especially to the latter. The extent of red on the abdomen is unusual—it is not confined to the basal segments, in fact it occupies the discs at least of all the segments. Its white markings also are very copious—they occur on every segment but the last. The ocellar region and the middle of the mesonotum are black, but otherwise even on the head and thorax there is very little black except on the under-side. And the generally pale appearance of the insect is made paler still by the silvery pilosity which, as in other desert species, clothes it more or less densely all over. Unfortunately this pilosity conceals the fine sculpture (puncturation, rugulosity, etc.) of certain areas (especially the propodeum) so that any "characters" that may exist in it are made practically unavailable. I have looked in vain for any special peculiarity of a structural nature in these insects, but their general appearance seems unlike that of anything yet described. (In Mr. Saunders's MS. list they appear as "sp. ?".)

Caput antice lacteum fere totum, superne nigrum, postice (pone ocellos) dilute-brunnescens temporibus fusco-maculatis. Pictura facialis lactea vel albida fere usque ad ocellum anticum ascendit, parvoque intervallo excepto spatium inter oculos totum occupat. In thorace albida sunt vel pallide flava—pronotum paene totum, mesonoti areae laterales cum tegulis alarum et parte pleurarum, scutellum, postscutellum, et propodei maculae 2 magnae laterales. Abdomen usque ad apicem pallide-testaceum, segmentis nonnullis partim nigricantibus (sed parcissime !), apicibus omnium (excepto ultimo) albido-fasciatis, fasciis latis et, ut videtur, semper integris. Antennæ pallide fulvescentes, superne plus minusve infuscatae, basi antice albida. Pedes colore simili, fusco plus minusve distincte lineati vel maculati, tibiis tarsisque vel totis vel antice saltem albidis. Corpus argenteo-sericans pilosumque, ita ut sculptura integumenti non facile dignosci possit. Clypeus simplex, apice lenissime late emarginato.

Vertex fere planus (certe haud tumidus !). Ocelli utriusque postici distantia et ab ocello antico et ab oculo fere eadem (scilicet diametri sui longitudini subaequalis !). Antennae ♂ normales, articulis omnibus longioribus quam latioribus, forma fere simplici.

Long. 3½–5 mm.

1 ♂. Biskra, "Eyes sap green," 30. iv, 94. A. E. E.
1 ♂. 1 ♀, Biskra, 9. iv, 97. A. E. E.

KOHLIA COXALIS, Morice

3 ♂♂. Biskra, on *Ammi visnaga*. "Eyes glaucous or sea-green," 24. and 5[illegible]. v, 97. A. E. E.
3 ♂♂. Biskra, 31. v and 6. and 9. vi, 98. F. D. M.
2 ♀♀. Biskra, 3. and 9. vi, 98. F. D. M.

STIZUS TRIDENS, F. var. ?

The ♀♀ have the clypeus and labrum more or less largely marked with yellow, whereas Handlirsch says of *tridens* ♀, "Facies semper omnino nigra." Notwithstanding, I believe these insects belong to that species. Saunders in his MS. list refers them doubtfully to *cyanescens*, Rad. But with the latter as described by Handlirsch they agree neither in puncturation nor pilosity. Apart from the yellow ♀ clypeus, etc., they seem to me absolutely normal *tridens*; and I may say that I have a ♀ from Palestine, determined by Herr Kohl as *tridens*, in which though the labrum is black, and the clypeus mostly so, there is a small patch of yellow on the latter (towards the apex of its longitudinal diameter).

I do not know whether the ordinary form of *tridens* ♀ has been recorded from Algeria. There is none such among Mr. Eaton's captures, and I did not find the species there at all.

2 ♂♂. Bône, on *Euphorbia paralias*, "eyes dark greenish," 5. viii, 97. A. E. E.
2 ♂♂. Bône, "visiting Homopterous blight on *Tamarix*," 9. viii, 97. A. E. E.
5 ♀♀. Bône, on sandy ground, 6.viii, 96, 2. ix, 96, 26. vii, 97. A. E. E.
1 ♀. Médéa, on *Eryngium triquetrum*, 10. vii, 93. A. E. E.
5 ♀♀. Le Tarf, on *Foeniculum vulgare*, 24. and 27. vii. 96. A. E. E.
2 ♀♀. La Calle, burrowing in sand "near the water's edge," 4. and 15. vii, 96. A. E. E.
1 ♀. Biskra, visiting *Tamarix*, 21. iv, 97. A. E. E.

STIZUS ACANTHOMERUS, n. sp.

Tridenti, F., simillimus et affinis ; pictura simili, sed pallidiore (subvirescenti-lactea), et paullo ditiore. (Scutellum fascia magna continua vel interrupta, postscutellum fascia continua semper ornatum. Abdominis fasciae omnes continuæ, fascia segm. 1^mi^ postice haud emarginata.) ♂ antennis ut in *tridente* constructis, ventre inermi. ♀ facie semper flavo-picta.

A *tridente* propter notas sequentes certe distinctus—(*a*) Ocelli postici ab oculis *evidenter minus quam inter se* distant. (*b*) Antennarum insertiones a clipeo area frontalis oblonga *bene definita* (*latitudinis suae dimidio haud* (♂) *vel non multo* (♀) *brevior*) separat. (*c*) Femora postica ♂ subtus excavata in fine sulci huius apicali armantur (fere ut in *S. meridionali*) *spinula una erecta nigra*. (*d*) Corpus minus hirsutum, pilis brevioribus et, ut videtur, mollioribus plerumque minus erectis. Punctulatio thoracis concinnior, aequalis, subtilissima, densissima, *sine punctis maioribus conspicuis*. (*e*) ♀ praeter corporis flavedinem ditiorem distinguitur statim antennis pedibusque *nigredine omnino carentibus* (solum nonnusquam leniter rufescentibus). (*f*) ♂ tibia postica fortius incrassato-dilatata sed minus spinosa (spinulis saltem brevioribus).

6 ♂ ♂, 2 ♀ ♀. Biskra, on *Ammi visnaga*, 18.–30. v, 93. A. E. E.

3 ♂ ♂. Biskra, on *Deverra chlorantha*, 13. v, 97. A. E. E.

1 ♂. Biskra, on *Zizyphus lotus*, 14. v, 97. A. E. E.

3 ♂ ♂. Biskra, on *Ammi visnaga*, 19. and 21. v and 19. vi, 97. A. E. E.

8 ♂ ♂. Biskra, 18. v–4. vi, 98. F. D. M.

11 ♀ ♀. Biskra, 20. v–11. vi, 98. F. D. M.

STIZUS DISCOLOR, Handl.

1 ♀. Biskra on *Ammi visnaga*, 18. v, 93. A. E. E.

2 ♂ ♂, 3 ♀ ♀. Biskra, on *Ammi visnaga*, 24. v–22. vi, 97. A. E. E.

7 ♂ ♂, 5 ♀ ♀. Biskra, 30. v–9. vi, 98. F. D. M.

STIZUS MAYRI, Handl.

1 ♂, 1 ♀. Azazga, on *Mentha*, "altitude of about 1420 ft.," 13. vi, 93. A. E. E.

4 ♂ ♂. Le Tarf, "on sandy ground," 17. vi, 96. A. E. E.

The ♀ seems to be undescribed. Comparing it with *peregrinus* ♀ I find no distinguishing structural character whatever, and even the coloration is almost identical—

only the abdominal fasciae appear wider, through being much less widely and deeply bi-excised in front. (This makes the two sexes superficially more similar than in other related species (*peregrinus, gazagnairei*) where the ♂ is generally a more brightly-coloured insect than the ♀.)

(Mr. Saunders's MS. alludes to another ♀ "Near Médéa, alt. about 3180 ft., burrowing in sandy soil about 1 p.m. 15. vii, 93, A. E. E.," but I cannot find this specimen in his collection, and do not know what has become of it.)

STIZUS GAZAGNAIREI, Handl. (?)

1 ♀. Constantine, 15. vi, 98, F. D. M.

I am somewhat doubtful about this determination, partly because of the date of the capture, and partly because the specimen is a little (but only a very little) more highly coloured than any of a series of ♀ ♀ before me which are certainly *gazagnairei*, taken by myself with their males at Hamman Bou Hadjar (Province of Oran) in April, before any other *Stizus* had appeared. In this specimen the clypeus is entirely yellow, and the legs show no black markings between the extreme bases of the femora and the unguiculi, while in all the Oran ♀ ♀ the former has a black central spot at its base, and the latter vary considerably in the extent of their infuscation but are never quite immaculate. Still I do not know what else it can possibly be, and its abdominal fasciae are abbreviated at their sides, and that on segm. 5 reduced to a mere central spot, exactly as in normal *gazagnairei*. It seems not impossible that the brighter coloration of the Constantine specimen may be a consequence of its appearance at a later date, or to some climatic difference between East and West Algeria; but it is perhaps rash to theorise about a single specimen which may after all belong to some distinct but cognate species. Several forms of this Group and those near to it have their ♂ ♂ abundantly distinct, but their ♀ ♀ almost indeterminable when they occur in isolated specimens apart from the other sex; (cf. Handlirsch's Synoptic Tables of the ♀ ♀ *passim* !)

STIZUS ZIBANENSIS, n. sp.

In Mr. Saunders's MS. these specimens are listed as *meridionalis*, Costa, but that species is not otherwise represented in his collection, and though its description

suits them in the main point, viz. that the 3rd ♂ ventral segment bears a tooth, it appears to me that they have structural characters which distinguish them from the real *meridionalis*. Of the latter I have several specimens, but unfortunately ♂♂ only, from S. Italy (Taranto) and Corfu. All these, besides being darker insects, with narrower abdominal fasciae, than *zibanensis* and very much more black on the legs, differ from it in at least three points of structure, viz. the hind femora have a definite and fairly long ante-apical spine (in *zibanensis* there is only an extremely short black tooth—more like a minute tubercle than a spine!—), the hind tibiae are simple (in *zibanensis* they are somewhat paradoxically compressed and twisted slightly in the middle, so that in a particular point of view both their lateral outlines appear distinctly sinuated inwards between their bases and apices); and finally the 7th ventral segment is "inerme" (Handlirsch) in *meridionalis*, while in *zibanensis* its extreme apex forms a tooth-like projection, much as in *discolor*, which is distinctly visible when the insect is viewed in profile from either side.

Mr. Eaton was so fortunate as to capture a ♀ together with one of his ♂♂. It completely agrees with their rather bright coloration, and is therefore probably distinguishable "at sight" from *meridionalis* ♀, which, according to Handlirsch, would seem to resemble its own ♂, and therefore to be darker than the specimen before me.

♂. Antennis fere ut in *meridionali* constructis; segmento ventrali 3^{tio} dentato (dente plerumque minore magisque incurvato, sed et forma et magnitudine variat!) 7^{mi} apice dentiformi, angustato ac reflexo. Femora postica ante apicem haud spinula setiformi, sed dente nigro vel tuberculo brevissimo instructa. Tibiae posticae in medio singulariter *compressae ac leniter quasi contortae*, propterea marginibus ambobus ut videtur *intus sinuatis*. Pictura opulentior quam in *meridionali*, fere omnino ut in *gazagnairei* ♂. Flava sunt—facies sub antennis tota: collaris margo posticus cum tuberculis humeralibus: tegulae alarum etiamque mesonoti margines his adiacentes: scutelli maculae 2 magnae triangulares: post-scutellum totum: abdominis segmentorum 1–6 dorsalium fasciae apicales latae integrae (etiam in ventre plus minusve conspicue continuatae); fascia 1ma postice late ac leniter semel emarginata, reliquis bi-excisis ac propterea tri-lobatis. Fulva vel testacea—segmenti dorsalis 7^{mi} macula magna apicalis: antennae (superne leniter infuscatae): pedesque (exceptis coxis trochanteribus que nigris)

♀. Pictura mari simillima: sed facie supra clypeum, etiamque segmento abdom. ultimo fere usque ad apicem ipsum, nigris. Caput antice latius (minus rotundum) quam in *peregrino*, fere ut in *kotschyi* sec. Handl. in Monogr. VI, Tab. iii, fig. 2.

4 ♂ ♂, 1 ♀. Biskra, on *Zizyphus lotus*, 29. and 30. iv, 95. A. E. E.

3 ♂ ♂. Biskra, 7. and 20. v, 98. F. D. M.

Stizus tridentatus, Fabr.

1 ♀. De Tarf, on *Focniculum vulgare*, 24. vii, 96 A. E. E.

1 ♀. Aine Draham (Tunisie) on *Centaurea*, "altitude from about 2700 to 3300 ft.," 21. vii, 96. A. E. E.

1 ♂. Constantine, 15. vi, 98. F. D. M.

Stizus melanopterus, Dhlb.

1 ♂. Biskra, on *Zizyphus lotus*, "visits also *Nitraria tridentata* and *Statice pruinosa*. Eyes red purple." 24. v, 94. A. E. E.

1 ♀. Biskra, on *Ammi visnaga*. "Eyes brown purple." 25. v, 93. A. E. E.

1 ♂, 4 ♀ ♀. Biskra, on *Ammi visnaga*, 30. iv, 95 and 21. v–5. vi, 97. A. E. E.

1 ♂. Biskra, 20. v, 98. F. D. M.

Stizus crassicornis, Fabr.

1 ♂. Biskra, "near Railway kilom. 198." 17. v, 94. A. E. E.

7 ♂ ♂. Biskra, 14. v–1. vi, 98. F. D. M.

6 ♀ ♀. Biskra, 20. v–7. vi, 98. F. D. M.

Stizus klugi, Smith

1 ♂, 2 ♀ ♀. Biskra, 20. and 26. v and 3. vi, 98. F. D. M.

The ♂ has the 2 apical segments and a streak at the apex of segm. 5 testaceous; the ♀ ♀ have only obscure indications of that colour on segm. 6.

Stizus poecilopterus, Handl. (= *fasciatus*, Kl., nec Fabr.)

1 ♂. Biskra, on *Ammi visnaga*, 22. vi, 97. A. E. E.

This is a remarkable and interesting capture. As the ♂ is unrecorded, and the ♀ known only from Ambukohl in

Ethiopia, Mr. Saunders's determination of it was inevitably conjectural; but the insect clearly belongs either to that, or to some nearly-related species as yet unknown at any rate to the Palaearctic Fauna, such as *calopteryx*, Handl. (from India). It may be desirable, therefore, to give some description of its main characters. (Its general appearance is quite that of a tropical, rather than of a Mediterranean insect.)

Comparing it with Handlirsch's Analytic Tables one arrives without hesitation at the dichotomy *calopteryx* or *poecilopterus*, but there hesitates because the former is called "Species orientalis," and the latter ("Species africana") has the propodeum *red*, while in this specimen the "triangular area" at least is *black!* Such a character, however, cannot be thought to be conclusive: and even if it holds in the ♀ ♀, the ♂ ♂ may differ.

The head is more or less like those of *melanopterus* and *tridentatus*, the eyes converging somewhat similarly, and the apex of the clypeus folded in at its sides, so as to embrace the labrum, as in those species. But the clypeus appears decidedly less elongate; and the eyes approach much nearer to the posterior ocelli—the interval being much less than that which separates the latter from the anterior ocellus, or from one another. The neuration is just as in the above species (1st cubital cell *very* narrow above, etc., etc.). The insect is entirely without yellow markings, and is black only in the neighbourhood of the ocelli, on the triangular area of the propodeum, and (more or less dilutely) on some of the dorsal abdominal segments. Its general colour varies between two reddish shades, one lighter, the other darker. The antennae are subclavate, the 3rd joint hardly as long as the two following together, the apical joint about as long as the 12th much curved and sharply truncate. The head round about the ocelli is rather tumid and glabrous; but below these swollen areas, the face is somewhat impressed, and covered with beautiful silvery flat-lying hairs. The convex clypeus is separated from the bases of the antennae by a subtriangular "tectiform" area (so raised centrally as to appear carinated). The pronotum is almost without sculpture; the mesonotum closely and rugosely punctured, the scutellum finely and sparsely so; the propodeum has much larger punctures, very sparse in the middle, but becoming dense and even rugose on the sides. Behind, the propodeum is not

rounded off, but ends in a very sharply-defined truncation the corners of which are angular or even tooth-like, depressed and then reflexed, with a curiously jagged or denticulate outline. The triangular area is large, well defined, and bisected by a shallow linear impression.

The colour of the wings is the most striking of all its characters. At their bases they are clear hyaline up to the points at which the veins begin to branch and form "cells." The *upper* wings only are clear along a part of their apical margin, viz. from the apex of the radial cell to that of the vein which André calls "nervure posterieure." The rest of their extent is occupied by a most conspicuous dark fascia, with a sharp, nearly straight, interior margin. It is umber-brown by transmitted light, but by reflected light exhibits a most beautiful blue and purple iridescence, which contrasts quite startlingly with the clear glassy basal areas adjoining it.

Stizus grandis, Lep.

1 ♂. Biskra, on *Ammi visnaga*, 15. vi, 97. A. E. E.
1 ♀. Biskra, on *Ammi visnaga*, 25. v, 97. A. E. E.

Stizus tricolor, Handl.

10 ♂♂. Biskra, 5. to 25. v, 98. F. D. M.
5 ♀♀. Biskra, 16. to 25. v, 98. F. D. M.

I have little doubt that I am correct in this identification. Most of the ♂♂ agree in every respect with Handlirsch's description of one of the two ♂♂ (from Syria and Cyprus) on which alone he based it, viz. that in which the yellow band on the 2nd abd. segment was entire. The rest are in all main characters exactly similar, but exhibit one or other of certain slight differences in colour which, I feel certain, are individual and not specific, *e.g.* the propodeum may show either more or less of yellow than in Handlirsch's types, and in one specimen is black entirely; the apical abd. segment also is narrowly streaked with black longitudinally in one specimen, more broadly so in another, and in two black altogether.

The ♀♀ were taken along with them, and evidently belong to them. All the specimens (♂♂ and ♀♀) have the basal segment of the abdomen distinctly red, and the yellow bands on the following segments uninterrupted and exceedingly broad. In the ♀♀ the yellow markings on

the propodeum invariably unite into an entire arcuate (or semicircular) band—this is the case also with one at least of the ♂♂—and the apex of the abdomen is invariably a little rufescent.

Having carefully considered all Handlirsch's descriptions of the species assigned by him to the *fasciatus*-group (*rufiventris*, *niloticus*, etc.), and examined in the light of them the structural characters (puncturation, ♂ antennae,) as well as the colour of the wings and body in these insects, I can find nothing to which they seem likely to belong except *tricolor*. Characters of the latter which are conspicuous in them are the rather strong yellow staining of the wings, the dark violaceous-brown cloud over their radial area, and the clear exterior and inferior margin; also the even thoracic puncturation, the *narrow posterior* and *broad anterior*, yellow edging round the eyes, and to judge from Handlirsch's figure (Plate II, 10) the form of the apical joints in the ♂ antenna.

I believe that the following specimens, which are all ♂♂, may safely be referred to the same species. Certainly they now look very different from it; but only, I believe, because their original coloration has been completely altered by the effects of cyanide. In all of them, the red and yellow markings of normal *tricolor* alike on thorax and abdomen are represented only by slightly-differing shades of sordid brownish orange. The *pattern*, however, of these markings seems to be the same as in *tricolor*; and, curiously, the yellow on the face (clypeus, etc.) is very little affected, though even here, occasionally, it inclines slightly to become rufescent.

3 ♂♂. Biskra, on *Ammi visnaga*, "eyes reddish purple-brown," 18. and 25. v, 93. A. E. E.

2 ♂♂. Biskra, on *Zizyphus lotus* and *Nitraria tridentata*, "Eyes purplish brown," 24. v, 94. A. E. E.

(One of these is very small and dark, with the basal abd. segment practically black, and the band on the second segment interrupted. But I think it is only an aberration.)

2 ♂♂. Biskra, on *Zizyphus lotus*, "Eyes brown," "Eyes brown agate," 29. and 30. iv, 95. A. E. E.

1 ♂. Biskra, on *Ammi visnaga*, 24. v, 97. A. E. E.

2 ♂♂. Biskra, on *Ammi visnaga*, "Eyes light red-purple," 25. v and 22. vi, 97. A. E. E.

5 ♂♂. Biskra, 14. to 24. v, 98. F. D. M.

(It is odd that the cyanide, while reddening the *yellow* tints, seems to have had exactly the opposite effect on the *red*—expelling it and leaving the surface yellowish! In certain lights, however, a slight difference in colour between the (originally) red and yellow areas can be recognised; though there is no longer such a positive and striking contrast between them as is apparent in fresh specimens.)

Stizus hyalipennis, Handl.

1 ♂. Biskra, 31. v, 98. F. D. M.
1 ♀. Biskra, 2. vi, 98. F. D. M.

The ♂ has unluckily lost both antennae, so I cannot appeal to their characters to support this identification. But the colour, and unclouded wings, seem sufficient evidence.

Stizus marthae, Handl.

1 ♂. Biskra, on *Zizyphus lotus*, 24. v, 94. A. E. E.
1 ♀. Biskra, on *Ammi visnaga*, "Eyes greenish, or glaucous," 30. v, 93. A. E. E.
2 ♀♀. Biskra, on *Ammi visnaga*, 17. and 30. v, 97. A. E. E.
3 ♂♂. Biskra, 28. and 31. v and 6. vi, 98. F. D. M.
6 ♀♀. Biskra, 14. v to 3. vi, 98. F. D. M.

Stizus tunetanus, Costa

1 ♂. Biskra, 23. v, 98. F. D. M.

Stizus arenarum, Handl.

1 ♂. Biskra, "about 8.30 a.m.," "Eyes olive-green," 3. vi, 93. A. E. E.
1 ♂. Biskra, on *Zizyphus lotus*, 29. iv, 95. A. E. E.
11 ♂♂. Biskra, 14. v to 6. vi, 98. F. D. M.
3 ♀♀. Biskra, 25. v and 6. and 9. vi. 98. F. D. M.

Stizus rapax, Handl.

1 ♂. Biskra, on *Ammi visnaga*, "Eyes light yellowish green or olive-green," 28. v, 94. A. E. E.
1 ♀. Biskra, among *Tamarix* near the barrage. "Eyes very light yellowish olive-brown." 30. iv, 97. A. E. E.
6 ♂♂. Biskra, 12. v to 20. v, 98. F. D. M.

Stizus fuliginosus, Kl.

1 ♀. Biskra, on *Ammi visnaga*, 31. v, 93. A. E. E.
2 ♂♂, 4 ♀♀. Biskra, on *Ammi visnaga*, 28. v to 22. vi, 97. A. E. E.
2 ♂♂. Biskra, 23. v and 6. vi, 98. F. D. M.

The wings in one of Mr. Eaton's ♂♂ are discoloured in a very singular manner. The infuscation has vanished entirely *from the middle* of every "cellule," but remains persistent *at their edges*. Consequently every nerve and vein appears thickened and blurred; as though one should make a pen-and-ink sketch of the neuration, and dry it hastily with imperfectly absorbent blotting-paper! This seems to have happened before, and not after, the death of the insect.

Sphecius intermedius, Hdl.

1 ♂. Biskra, on *Ammi visnaga*, 29. v, 94. A. E. E.
1 ♀. Biskra, on *Ammi visnaga*, 26. v, 94. A. E. E.
1 ♀. Biskra, 20. v. 98. F. D. M.

My ♀ was determined long ago by Herr Kohl as probably the undescribed ♀ of *intermedius*. Mr. Eaton's ♀ agrees with it, and his ♂ answers to Handlirsch's description. (The *apical* sinuation of the last antennal joint below is so slight that it might easily be overlooked, and the joint supposed to be sinuated once only!)

This ♀—still, I believe, undescribed—is coloured just like the ♂, and has the upper wings similarly clouded along their upper margin (more narrowly and indefinitely than in *hemixanthopterus* described below). The antennae have their scapes flavous in front, black behind; the flagellum is fulvous simply at its base; but towards the apex the colour grows more and more dusky, and the apical and two penultimate joints are practically quite black. The orbits of the eyes are very narrowly yellow. The more apical yellow fasciae on the abdomen are scarcely visible in Mr. Eaton's dreadfully discoloured ♀, in my own they are bright and well defined, those on segments 1 and 2 are largely interrupted, that on segment 3 narrowly so, the rest continuous (though, in certain positions only, they *look* interrupted), those on segments 4 and 5 are bisinuate on their basal margins (but much less deeply so than in *S. luniger*), and that on segment 3 incloses a little

black spot. On the thorax the collar, tegulae, and humeral tubercles alone show any trace of yellow.

SPHECIUS HEMIXANTHOPTERUS, n. sp.

3 ♂♂ and 1 ♀. Biskra, 27. v–9. vi, 98. F. D. M.

This and the next species agree in most structural characters, and also in certain details of coloration which seem to be constant in both sexes, and which do not seem to characterise any of the species yet described from Palaearctic localities. The yellow fasciae of the abdomen above, which (as in *uljanini*, Rad.) are extremely wide and almost or quite continuous on all the segments, are ornamented with a series of little oval spots or specks (black in the ♂♂, reddish in the ♀♀) on segments 2–5. The spots stand out conspicuously in the middle of the yellow spaces surrounding them. On each segment there are two of them, one on each side. On segment 1 they are wanting, but instead—at the same distance from the sides of the segment—the basal margin of the yellow fasciae is interrupted by a little punctiform or linear incision, as though the blackness or redness at the extreme (declivous) base of the segment had just a little "overflowed" on to its yellow disc. The phenomenon is so similar in both species, that at first I did not doubt they were identical; but the characters given below make me certain that they should be distinguished. (Cf. the description following of *claripennis*, n. sp.)

The ♀ of *hemixanthopterus* is extraordinarily like that of *uljanini* as figured by Radoszkowsky, and redescribed from the type by Handlirsch; but the character just mentioned does not seem to occur in *uljanini*, and there are other differences which I shall note below. *Uljanini* ♂ is unknown.

Species in utroque sexu singularis alarum discis brunnea quadam flavedine infuscatis quae cellulam radialem, cubitalesque 1^{mam} et 2^{dam}—non autem 3^{tiam} !—occupat.

♂. Antennarum fulvescentium articuli 2 penultimi basisque ultimi subinfuscata : artic. ultimus in medio fortiter ut in *nigricorni* semel flexus (infra haud bisinuatus !). Metatarsi intermedii ut in *antennato* (non ut in *nigricorni*).

Pictura opulenta. Flava sunt facies tota sub antennis cum oculorum orbitis interioribus latis : mandibulae (exceptis apicibus nigris) : collaris margo posticus : mesonoti latera cum tegulis tuber-

culis que humeralibus: pedes que (exceptis coxarum basibus). Scutellum in exemplaribus hisce omnibus rufescit potius quam flavet: postscutellum omnino nigrum est. Segmenta abdominis dorsalia aut tota flava sunt, aut flavo-latissime fasciata, flavedine in medio non aut vix interrupta, sed in segmentis 1mo et 2do antice plus minusve emarginata vel excisa. Segmenti 1^{mi} basis declivis tota nigra, etiamque incisurae duo punctiformes in ipso margine fasciae segmenti huius flavae. Segmentorum 2–5 fasciae flavae unaquaeque utrinque ante apicem suum punctum quoddam vel guttam nigram subovalem transversam includit. Pilositas corporis albida.

♀. Mari similiter sed multo opulentius picta. Nigredo fere omnino deficit, vel in colorem rufum transit. Antennae usque ad apices testaceae (nusquam obscuratae) scapis antice flavis; facies tota flava. Vertex inter ocellos posticos rufescenti-flavo biguttatus. Occiput in medio et pars temporum pone oculos colore simili. Mesonotum lateribus basique in medio flavis, etiam in disco utrinque vitta lineari rufa ornatur. Flavent quoque collare totum, mesopleurae (mesosternum vero nigrum !), scutellum, postscutellum, propodei pars basalis, abdominisque fasciae (ut in ♂) latissimae, sed segmentorum 1 et 2 bases, itemque series supra descriptae macularum ovalium flavedine inclusarum in segmentis 2–5, rufae sunt (non nigrae).

Long. ♂ 15–17 mm., ♀ 19 mm.

Sphecius claripennis, n. sp.

4 ♂♂, 1 ♀. Biskra, all on *Ammi visnaga*, "eyes light yellowish green," 18. v to 18. vi, 97. A. E. E.

3 ♂♂, 1 ♀. Biskra, 28. v, 98. F. D. M.

6 ♂♂. Biskra, 25. v to 3. vi, 98. F. D. M.

The males are very like those of the last species, but seem to be on an average rather larger. They are easily separated by having entirely fulvous antennae, bright yellow (not reddish) scutellum,* and the bases of the abdominal segments more widely black, the yellow fasciae consequently being reduced so much as sometimes to encircle the black oval side-spots only behind, and laterally allowing them to become confluent with the blackness at the base. These mere colour-characters by themselves might seem unimportant, and those of the abdomen are subject to variation within certain limits—in fact in some

* Unless darkened by cyanide as in some of Mr. Eaton's specimens, in which case *the other yellow markings are reddened also.* In all mine the scutellum is distinctly yellow.

specimens all the black side-spots are surrounded with yellow entirely. But they are associated (in both sexes) with a character which I think more important, viz. in *claripennis* the wings are entirely unclouded, in *hemixanthopterus* always strongly clouded, and to exactly the same extent in all my specimens. The only ♀ among my ten captures is coloured precisely like the ♂♂, and therefore very differently from *hemixanthopterus* ♀. Mr. Eaton's ♀ was evidently similarly coloured in life, but has suffered much from cyanide. (The resemblance between these species and our commonest forms of *Vespa*, e. g. *vulgaris* and *germanica*, is really quite extraordinary, but of course entirely superficial.)

♂ antennarum flexione apicali et metatarsi intermedii structura *hemixanthoptero* affinis, illis vero ante apices haud infuscatis et articulis evidenter magis elongatis.

Pictura in ♂ et ♀ paene eadem. Flava sunt, facies sub antennis tota cum mandibularum parte basali et oculorum orbitis interioribus: collare, tegulae, tuberculi humerales, macula (haud magna) mesopleuralis, latera mesonoti, scutellum, striga transversa postscutelli, segmentum abdominis apicale totum, et reliquorum segmentorum fasciae fere ut in *hemixanthoptero* ♂ sed inter se nigredine basali segmentorum magis evidenter separatae. Fascia segm. 1^{mi} continua, 2^{di} distincte quamvis anguste (per vittam nigredinis) in medio interrupta, reliquorum incisae quidem plus minusve profunde sed tamen continuae. Segmentorum 2–5 fasciae flavae maculam unaquaeque utrinque nigram vel totam, vel saltem lateraliter posticeque, includunt. Pedes flavi, vel partim subrufescentes. Antennae in utroque sexu usque ad apicem testaceae, scapis flavo pictis. Caput postice, thoraxque infra nigra. Abdominis venter niger flavo-fasciatus, fasciis plus minusve angustatis atque interruptis, apice toto flavo.

Long. ♂ 15–20 mm., ♀ 22 mm.

Sphecius, sp. ?

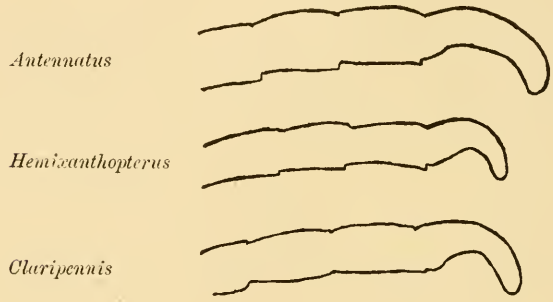
1 ♂. Biskra, 23. v, 98. F. D. M.

This specimen is no longer in my possession. I gave it away without keeping note of it, and the above record is quoted from the "Hymenopteren-Studien" of Dr. W. A. Schulz, who states that it has found its way into the Strassburg University Museum.

Dr. Schulz considers it to be a form of *antennatus*, Klug; but his very careful and detailed description of the speci-

men leads me to a different opinion. I think it must be a duplicate of the ♂♂ described above as *claripennis*, n. sp.

As Dr. Schulz points out, previous records of *antennatus* are limited to the *eastern* parts of the Palaearctic Region (from Turkestan to the Balkan peninsula, and nowhere on the African side of the Mediterranean). Again, from all that I can make out, *antennatus* (of which I possess only a single ♂ specimen* and the Saunders coll. another), is a species of very constant coloration, with far less of yellow either on thorax or abdomen than any of my *claripennis* specimens or than the insect described by Dr. Schulz. Handlirsch, after examining 20 specimens of *antennatus* from many localities, has satisfied himself that the long apical joint of the ♂ antenna with its inferior margin bisinuate is a constant character of *antennatus*; whereas in



claripennis and in the specimen now in question (*vide* Dr. Schulz's description) the apex of the antenna is constructed otherwise, viz. nearly as in *nigricomis*. The two *antennatus* ♂♂ before me quite answer in this respect, as well as in colour, to Handlirsch's statement; and in the absence of positive proof that the antennal character is variable, I should hesitate to discard the conclusions of so accurate and experienced a systematist as Handlirsch. In the present state of our knowledge, or rather ignorance, as to the possible variations of structural and other characters in *Sphecius*, and the precise distribution of nearly all its recorded forms, I think it safest to act on the hypothesis that two forms from widely-separated locali-

* This specimen, I ought to say, was taken by myself at Syracuse, and therefore at the extreme western limit of the recorded range of *antennatus*.

ties, with definable colour-differences, and obviously dissimilar apices to the ♂ antennae, are in all probability really distinct; and that, for the present at least, it is safest to call them by separate names.

The accompanying figures, or rather "silhouettes," of the apices of the ♂ antenna in *antennatus*, *hemixanthopterus*, and *claripennis* (placed as nearly as I can manage it in the same position and viewed from beneath) are obtained by photography from actual specimens in Saunders's and my own collections.

Bembex barbara, Hdl.

2 ♀♀. Near Médéa (alt. 2980–3000 ft.). 29. vi, 93, on *Eryngium triquetrum*, and 12. vii, 93, on *Centaurea calcitrapa*. A. E. E.

2 ♂♂, 6 ♀♀ (one of the latter a dwarf!). Constantine, 16. and 17. vi, 98. F. D. M.

Bembex galactina, Duf.

1 ♂. Biskra, on *Ammi visnaga*, 25. v, 93 ("afternoon"). A. E. E.

10 ♂♂, 4 ♀♀. Biskra, 7. v to 9. vi, 98. F. D. M.

Handlirsch (Mon.) mentions this species as unknown to him. Mr. Saunders identified the A. E. E. ♂ from comparison with a specimen sent to him as "*galactina*" by M. Vachal. The ♂♂ by Handlirsch's Table work out as *pallida*, Rad., but they cannot be that species, as (apart from colour-differences) the intermediate femora have rather long, sharp and quite conspicuous "spinulae" on their inferior margin. Dufour's description, as far as it goes, suits them, and his type was an Algerian insect (from Ponteba). Mr. Eaton has a note, "Eyes subolivaceous, light markings of the thorax and abdomen ashy blue." (In the latter character, however, there seems to be considerable variation—some specimens having also a distinct tinge of greenish yellow—much as in *chlorotica*, which *galactina* superficially a good deal resembles.)

Bembex brunneri, Hdl.

1 ♀. Biskra, on *Echinops spinosus*, 8. v, 97. A. E. E.

8 ♂♂, 4 ♀♀. Biskra, 16, v to 2. vi, 98. F. D. M.

Determined with the help of Egyptian specimens named for me by Handlirsch.

Bembex rostrata, F.

1 ♂, 1 ♀. Médéa, on *Eryngium triquetrum*, 29. vi, 93. A. E. E.

3 ♂♂, 3 ♀♀. Le Tarf, 23. vi, 96. A. E. E.

It will be seen that this common European species did not occur to either Mr. Eaton or myself at Biskra. (Its coloration is perhaps ill adapted to desert surroundings.)

Bembex mediterranea, Hdl.

Many ♂♂ of this common species were taken by Mr. Eaton and myself from April to August, but curiously only one ♀ (on *Zizyphus lotus*, at Biskra, 30. iv, 95. A. E. E.).

♂♂ occurred on *Scabiosa rotundifolia* at La Calle in July, on *Nitraria tridentata* at Biskra in May and April. Also at Hippône ("by the railway") and at Bône ("along the sands by the sea").

Bembex dahlbomi, Hdl.

1 ♂, 2 ♀♀. Biskra, on *Ammi visnaga*. "Eyes of ♂ sap-green, of ♀ greenish blue. Thorax with light yellow stripes on black ground . . . abdomen light ashy blue." 18 and 25. v, 93. A. E. E.

2 ♂♂. Biskra, 31. v, 93. A. E. E.

1 ♀. Between Tizi Ouzou and Azazga, 13. vi, 93. A. E. E.

2 ♂♂ and 1 ♀. Biskra, 7. v to 10. vi, 98. F. D. M.

Bembex radoszkowskyi, Hdl.

1 ♂. Biskra, on *Ammi visnaga*. "Eyes light bluish ash," 25. v, 93. A. E. E.

2 ♂♂. Biskra, 31. v, 98. F. D. M.

I have taken the same form exactly in Egypt (det. Kohl).

Bembex oculata, Latr.

Mr. Eaton took both sexes (dating from April to October) in various districts, and I (at Biskra) 7 ♀♀ (in May and June), but apparently no ♂♂.

The following plants are recorded by Mr. Eaton as visited:—*Eryngium triquetrum* and *Mentha rotundifolia* (Médéa), *Ammi visnaga* (Biskra and Hippône), *Zizyphus lotus* and *Echinops spinosus* (Biskra), *Scabiosa rotundifolia* (La Calle), *Inula viscosa* (Constantine).

Miscophus gallicus, Kohl

1 ♂. Médéa, 27. vi, 93. A. E. E.

Miscophus eatoni, Saunders

1 ♂, 1 ♀. Biskra ("near Kilom. 199"), 9. and 14. iii, 95. A. E. E.

Miscophus handlirschi, Kohl

1 ♀. Biskra, "by the river above the barrage amongst *Tamarix*," 21. iv, 97. A. E. E.
2 ♀♀. Biskra, 25. iv and 9. v, 97. A. E. E.

Solierella (Sylaon) compedita, Picc.

1 ♂. Biskra, "by Oued, Biskra, above the barrage amidst *Tamarix* and amongst *Cynodon dactylon*, on sandy ground loose on the surface," 16. v, 97. A. E. E.
(?) 1 ♀. Biskra, 19. v, 98. (A *Sylaon*; but perhaps another species?) F. D. M.

Trypoxylon scutatum, Chevr.

1 ♀. Biskra, on *Ammi visnaga*, 19. vi, 97. A. E. E.

Trypoxylon attenuatum, Smith

1 ♂. Bône, on *Chlorophora tinctoria*, 3. viii, 97. A. E. E.
1 ♂. Bône, on *Rubus discolor*, 13. viii, 97. A. E. E.
1 ♂. Constantine, 10. xi, 95. A. E. E.
2 ♂♂. Alger, 4. iv, 98. F. D. M.

Oxybelus lamellatus, Oliv. (= *arabs*, Lep.)

Mr. Saunders called this sp. "*arabs*, Lep," and no doubt it is so. But it is the species identified by Herr Kohl as *lamellatus*, and as that name has priority, I use it. The Algerian specimens are exactly like others from Egypt determined for me by Kohl, and one of my Biskra captures also bears his ticket "*lamellatus*, Oliv."

1 ♂. Biskra, "amongst *Tamarix*," 30. iv, 97. A. E. E.
1 ♀. Biskra, on *Ammi visnaga*, 28. v, 94. A. E. E.
1 ♂, 5 ♀♀. Hippône, on *Ammi visnaga*, 12.–15. viii, 96. A. E. E.
5 ♂♂, 1 ♀. Bône, "Common along the coast. . . . Fond of settling to bask on black or dark-coloured clothes." 14. ix, 96 and 25. vii, 97. A. E. E.

1 ♂. Médéa, 26, vi, 93. A. E. E.
1 ♂. Constantine, on *Atractylis gummifera*, 1. x, 93. A. E. E.
3 ♂♂. Biskra, 14., 16. and 30. v, 98. F. D. M.
2 ♀♀. Biskra, 27. v, 98. F. D. M.

Oxybelus 14-notatus, Jur.

2 ♂♂, 3 ♀♀. Biskra, amongst *Tamarix*, 7. iv–19. v, 97. A. E. E.
1 ♂, 1 ♀. Biskra, on *Ammi visnaga*, 13. v, 93. and 28. v, 94. A. E. E.
1 ♂, 5 ♀♀. Hippône, on *Ammi visnaga*, 12.–15. viii, 96. A. E. E.
1 ♂, 1 ♀. Le Tarf, on *Foeniculum vulgare*, 26. vii, 96. A. E. E.
3 ♂♂. Biskra, 14., 17. and 26. v, 98. F. D. M.
3 ♀♀. Biskra, 11., 14. and 16. v, 98. F. D. M.

Oxybelus africanus, Kohl

1 ♂. Biskra, amongst *Tamarix*, 2. v, 97. A. E. E.
1 ♀. Biskra, on *Ammi visnaga*, 27. v, 97. A. E. E.
2 ♂♂. Biskra, 4. v, 98. F. D. M.
3 ♀♀. Biskra, 14. and 23. v, 98. F. D. M.

Oxybelus pugnax, Oliv.

Some specimens are much darker than others, answering, as far as colour goes, to the descriptions usually given of *nigripes* (*e.g.* those of Gerstaecker and Marquet). But they have all the strong puncturation of *pugnax*, and I think all may safely be so called. (One of my captures was determined as *pugnax* by Kohl.)
1 ♀. Hippône, on *Ammi visnaga*, 10. viii, 96. A. E. E.
3 ♀♀. Biskra, among *Tamarix* (two very dark, one quite the reverse!), 4. iv and 1. v, 97. A. E. E.
4 ♂♂. Alger, 22.–30. iv, 98. F. D. M.
1 ♀. Biskra, 14. v, 98. F. D. M.

Oxybelus melancholicus, Chevr. (= *analis*, Gerst., nec Cress., sec. D. T.)

1 ♂. Biskra, 14. v, 98. F. D. M.
1 ♀. Alger (det. F. Kohl "*analis*, Gerst."), 30. iv, 98.

Oxybelus bipunctatus, Oliv.

1 ♂. Biskra, amongst *Tamarix*, 29. iv, 97. A. E. E.

Oxybelus, n. sp. ?

2 ♂ ♂. Biskra, 4. v, 98. F. D. M.

These specimens were submitted to Herr Kohl soon after capture, and determined by him as "n. sp. near *elegantulus*." But as one has since lost its abdomen, and the other is evidently much discoloured by cyanide, I think it better not to attempt a description, and therefore leave the form unnamed.

Belomicrus obscurus, Kohl

1 ♀ (det. auctor !). Bône, visiting *Sedum caeruleum*, 10. vi, 96. A. E. E.

2 ♀ ♀. Biskra, 7. and 11. v, 98. F. D. M.

Belomicrus odontophorus, Kohl

1 ♂, 7 ♀ ♀. Biskra, "on sand amongst *Cynodon dactylon* and *Tamarix*," 15.–20. iv, 97. A. E. E.

1 ♂, 1 ♀ (det. auctor !). Biskra, 14. v, 98. F. D. M.

2 ♂ ♂, 1 ♀. Biskra, 14. v, 98. F. D. M.

2 ♂ ♂. Biskra, 20. v, 98. F. D. M.

Crabro (Brachymerus) 5-notatus, Jur. (= *trochantericus*, H. Sch.)

1 ♀. Azazga, 17. ix, 93. A. E. E.

2 ♀ ♀. Bône, 14. v and 1. vi, 96. A. E. E.

1 ♀. Hippône, 16. v, 96. A. E. E.

Crabro (Solenius) hypsae, de Stef.

1 ♀. Alger, on *Magydaris tomentosa*, 5. v, 93. A. E. E.

1 ♂, 1 ♀. Constantine, on *Thapsia garganica*, 19. v, 95. A. E. E.

5 ♀ ♀. Le Tarf, on *Foeniculum vulgare*, 24.–26. vii, 96. A. E. E.

1 ♀. Bône, on *Euphorbia paralias*, 31. vii, 96. A. E. E.

1 ♂, 1 ♀. Hippône, 15. viii, 96. A. E. E.

1 ♂, 1 ♀. Bône, on *Chlorophora tinctoria*, 3. and 12. viii, 97. A. E. E.

1 ♀. Constantine, 17. vi, 98. F. D. M.

Crabro (Solenius), sp. ?

Mr. Saunders has left this unnamed. It is like the last, but larger and much more pilose. In structure and sculpture it appears to me most like *meridionalis*, Costa,

but the abdomen in both sexes is practically unicolorous—black. (There is no *meridionalis* in Mr. Saunders's collection, and I believe it was unknown to him. My own specimens from Greece and Turkey in Asia have just been returned to me under that name by Herr Kohl, and comparing them with the present insects, I can find no difference except in colour. Hence I suspect, though I do not venture to say positively, that specifically they are identical.)

1 ♂, 1 ♀. Constantine, on *Ferula communis*, 17. and 22. v, 95. A. E. E.

Crabro (Thyreus) clypeatus, F.

4 ♂ ♂. Biskra, 16. and 25. v, 98. F. D. M.
4 ♀ ♀. Biskra, 10. and 23. v, 98. F. D. M.
1 ♂. Constantine, 16. vi, 98. F. D. M.

All these specimens have been determined for me by Herr Kohl. Mr. Eaton has taken what appears to me to be the same form exactly, but Mr. Saunders seems to have had a doubt on the subject, for his MS. has a note in pencil, "n. sp. nr. clypeatus."

The localities, etc., for these specimens are as follows—

1 ♂, 1 ♀. Biskra, on *Ammi visnaga*, 3. vi, 93 and 15. v, 97. A. E. E.

4 ♂ ♂, 4 ♀ ♀. Le Tarf, on *Foeniculum vulgare*, "sexes taken in cop.," 24. and 26. vii, 96. A. E. E.

Crabro (Crossocerus) elongatulus, Lep.

2 ♂ ♂, 2 ♀ ♀. Biskra, on *Euphorbia guyoniana*, 22. iii, 94. A. E. E.

1 ♂, 1 ♀. Constantine, "♂ on *Ecballium elaterium*, ♀ on *Ferula scabra*," 30. ix, 93. A. E. E.

1 ♀. Alger, 9. iii, 93. A. E. E.

1 ♀. Bône, 14. v, 96. A. E. E.

3 ♂ ♂. Alger, 4., 15. and 21. iv, 98. F. D. M.

Crabro (Lindenius) spilostomus, Kohl

1 ♀. Constantine, on *Oenanthe fistulosa*, 7. v, 95. A. E. E.

Crabro (Lindenius) hannibal, Kohl

1 ♂. Constantine, visiting *Thapsia garganica*, 17. v, 95. A. E. E.

2 ♀ ♀. Hippône, on *Ammi visnaga*, 10. and 15. viii, 96, A. E. E.

1 ♂, 2 ♀ ♀. Biskra, 14. v, 98. F. D. M.

Crabro (Lindenius), n. sp.

2 ♀ ♀. Biskra 8. and 20. iv, 97. A. E. E.

I do not name or describe these specimens, as they will be dealt with ere long in Herr Kohl's work now preparing on the *Crabronidae*.